
**IEEE P802.11
Wireless LANs**

Approved Minutes of the IEEE P802.11 Full Working Group

January 13 -17, 2003

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Joint 802.11 / 802.15 Opening Plenary: Monday, January 13, 2003

1.1. Introduction

- 1.1.1. Meeting called to order by Stuart J Kerry and Bob Heile at 08:00
The agenda of the 77th session of 802.11 is in doc.: IEEE 11-02-763r4, This session is including 802.15, 802.18 RREG TAG and 802.19 Coexistence TAG.
- 1.1.2. Secretary – Tim Godfrey
- 1.1.3. New participants: 24
- 1.1.4. There are 180 people in the room.

1.2. Announcements

- 1.2.1. The chair thanks Motorola for hosting the meeting.
- 1.2.2. There are approximately 350 registered, expecting 400.
- 1.2.3. Review of meeting locations, hotel logistics, social.

1.3. Review of policies and procedures

- 1.3.1. Al Petrick reviews document 802.11 00/278r4, showing the officers of the 802 wireless working groups, and rules and procedures.
- 1.3.2. Review of LMSC Operating Rules Policies and Procedures
 - 1.3.2.1. 802.11 rules are currently 00/333r4.
- 1.3.3. Review of requirements for registration, payment of meeting fee, and providing contact information.
- 1.3.4. Only the WG chairs and vice chairs are allowed to give statements on WG positions to the media and press.
- 1.3.5. Review of Pluto attendance book procedure and Wireless Network.
 - 1.3.5.1. The definition of attendance and participation for voting rights purposes are reviewed.
- 1.3.6. Review of membership and anti-trust laws
- 1.3.7. Review of the IEEE patent policies and procedures
 - 1.3.7.1. New procedures adopted at the December 2002 IEEE Standards Board meeting were explained.
 - 1.3.7.2. The following two new slides of the rules and procedures were read to the group and displayed by the Vice-chair, Al Petrick.

IEEE-SA Standards Board Bylaws on Patents in Standards**6. Patents**

IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard. This assurance shall be provided without coercion and prior to approval of the standard (or reaffirmation when a patent becomes known after initial approval of the standard). This assurance shall be a letter that is in the form of either

a) A general disclaimer to the effect that the patentee will not enforce any of its present or future patent(s) whose use would be required to implement the proposed IEEE standard against any person or entity using the patent(s) to comply with the standard or

b) A statement that a license will be made available without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination

This assurance shall apply, at a minimum, from the date of the standard's approval to the date of the standard's withdrawal and is irrevocable during that period.

Slide #1

Approved by IEEE-SA Standards Board – December 2002

**Inappropriate Topics for IEEE WG Meetings**

- Don't discuss licensing terms or conditions
- Don't discuss product pricing, territorial restrictions or market share
- Don't discuss ongoing litigation or threatened litigation
- Don't be silent if inappropriate topics are discussed... do formally object.

**If you have questions,
contact the IEEE Patent Committee Administrator
at patcom@ieee.org**

Slide #2

Approved by IEEE-SA Standards Board – December 2002



- 1.3.8. Review of wireless network procedures by Tim Godfrey
- 1.3.9. Review of attendance recording procedures by Al Petrick and Thierry Walrant

1.4. Approval of Agenda

- 1.4.1. The agenda in document 02/763r4 is presented
 - 1.4.1.1. Motion to approve the agenda
 - 1.4.1.1.1. TK Tan / Rick Alfin
 - 1.4.1.1.2. the agenda is approved by unanimous consent.

1.5. Approval of minutes

- 1.5.1. Motion to approve the minutes from Kauai Hawaii
 - 1.5.1.1. Jon Rosdahl, Rick Alfin
 - 1.5.1.2. Approved with unanimous consent
- 1.5.2. Any matters arising from the minutes? None.

1.6. Interim Meetings

- 1.6.1. May 2003, Singapore. The registration will be available in Mid-February. Everything will be done on the web, including hotel registration. Hotel and meeting registration will be linked. There are two properties the Stanford Swiss Hotel (Approx S\$180) and The Raffles Plaza North and South Towers (Approx S\$210). Meeting planners will be Tourhosts from Australia.
- 1.6.2. Still looking for a September 2003 location. Considering Ottawa, Canada, NIST in Denver, Microsoft in Seattle.
- 1.6.3. January 2004 – Vancouver Hotel. Hosted by IEEE.
- 1.6.4. Looking for May 2004 sponsors. Probably European.

1.7. Review of Financials

- 1.7.1. At the end of 2002, we had a reserve of \$50K.
- 1.7.2. We have been reviewing software development proposals for improving the electronic attendance application and including future electronic voting.
- 1.7.3. We are looking at professional contractors to support the wireless network.

1.8. Report of Executive Committee

- 1.8.1. The plenary meeting fees are increasing to \$300 advance.
- 1.8.2. We formed TGj and TGk in 802.11, and new task groups in 802.16, as well as a new working group 802.20.
- 1.8.3. We are working on getting all of 802. to share private documents. So far all documents except 802.3 and 802.17 are available.

1.9. Reports from 802.11 Task Groups

- 1.9.1. TGe – John Fakatselis
 - 1.9.1.1. TGe is going to focus on resolving comments from LB51.
 - 1.9.1.2. The WG chair announces the LB passed with 83%, 93% return rate. 225 yes 46 no 27 abs
 - 1.9.1.3. There are 1700 comments, and 600 editorial

1.9.2. TGf – Jon Rosdahl (pro-tem chair for Dave Bagby)

- 1.9.2.1. Results of Sponsor Ballot on 802.11f
- 1.9.2.2. 56 yes, 3 no, 3 abstain
- 1.9.2.3. Return ration 80\$, abstain ration 4%.
- 1.9.2.4. There are 20 comments to be resolved this week.

1.9.3. TGg – Matthew Shoemake

- 1.9.3.1. The WG chair reports the LB50 results: 320 voters in the pool; 308 votes returned 95.5%
- 1.9.3.2. Votes 256:34:18 88.28% approve, 11.82 no, 6.2% abstain
- 1.9.3.3. Report in document 03/036.
- 1.9.3.4. We have 12% No Votes, and 50 Commenters. These results are slightly different from what was posted on email. There were two people
- 1.9.3.5. All 802.11g voting results are in document 02/714.
- 1.9.3.6. Objectives for this week. There are 50 commenters. We don't have a sum of all comments. The meeting this week will start with discussion of schedule.
- 1.9.3.7. The group will have to decide between going straight to Sponsor ballot, or a WG recirculation ballot.
- 1.9.3.8. Schedule option 1: Go to sponsor ballot out of this meeting. Sponsor Ballot before Dallas Plenary. Up to 3 recirculations before the Standards board in June.
- 1.9.3.9. Option 2 – recirculation ballot at this meeting, and then sponsor ballot. That gives the opportunity of 2 sponsor recirculations before June.

1.9.4. TGh – Mika Kasslin

- 1.9.4.1. There was a sponsor ballot that closed last night. We will have the results on Wednesday.
- 1.9.4.2. We have received comments related to some no-votes. We will process them this week.

1.9.5. TGi – Dave Halasz

- 1.9.5.1. The LB52 closed last night. We don't have the official report. We do have a number of comments. Approximately 2000 comments to be processed this week.

1.9.6. TGj – Sheung Li

- 1.9.6.1. Sheung Li is pro-tem chair elect until a chair is elected.
- 1.9.6.2. The WG chair asked if there are any other volunteers for TGj chair.
None
- 1.9.6.3. The WG approves Sheung Li as chair by acclamation
- 1.9.6.4. The TG will review issues and presentations this week, and begin on forming the draft.

1.9.7. TGk – Richard Paine

- 1.9.7.1. This is the first meeting as TGk. This is the radio resource measurement group. Working towards selection of leadership, technical presentations for the draft.
- 1.9.7.2. There a modification to the agenda, as noted in R4 of the agenda. A new session on Monday night.
- 1.9.7.3. Working on measurement requirements for data, voice, and video.
- 1.9.7.4. Report in document 03/038.
- 1.9.7.5. There will be teleconferences between meetings.

1.9.8. WNG Standing Committee – TK Tan

- 1.9.8.1. There will be 3 sessions this week.

1.9.8.2. There will be updates from BRAN and MMAC. There will be discussion from the WIG also. A baseline document is available on the server.

1.9.8.3. A PAR and 5 Criteria for WIG will also be considered. There are other presentations on smart antennas.

1.9.9. HTSG – Jon Rosdahl

1.9.9.1. The WG chair announces that Jon cannot continue as chair of the Task Group. The WG Chair makes a formal call for nominees for chair of the High Throughput Task Group.

1.9.9.2. Would be called TGm, since TGI is hard to discern.

1.9.9.3. Currently there is one nominee, Bruce Kraemer. If other nominees are brought forward, there will be a selection vote.

1.9.9.4. Anyone who would be interested should notify an officer.

1.9.9.5. The HTSG opening report is in document 03/012.

1.9.9.6. The HTSG will develop the PAR and 5 Criteria this week so a Task Group can be formed in March.

1.10. Reports from 802.15 task Groups

1.10.1. 802.15.2 – Steve Shellhammer

1.10.1.1. 802.11 ballot on LB53 on 802.15.2. LB53 in 802.11 passed 94%, 6% no, 15% abstain. (it is a recirc).

1.10.1.2. 802.15 LB23 94%. 61:4:18. There were no new NO votes.

1.10.1.3. The LB did pass the 75% return ratio.

1.10.1.4. There will be comment resolutions this week in preparation for sponsor ballot.

1.10.1.5. Documents are on the 802.15 server

1.10.2. 802.15.3 – John Barr

1.10.2.1. TG3 just finished a sponsor ballot.

1.10.2.2. 101 voters, 56 affirmative, 17 negative, 6 abstain

1.10.2.3. 78% return ratio.

1.10.2.4. 76% approve.

1.10.2.5. Comments are on 802.15 server. 826 comments were submitted.

1.10.2.6. Will have a recirculation in March, and go to RevCom after the Plenary

1.10.3. TG4 – Bob Heile

1.10.3.1. Have finished first sponsor ballot and will conduct comment resolution. Recirculation in March plenary.

1.10.4. TG3a – Rick Roberts

1.10.4.1. 02/104 has been converted to task group numbers. Selection criteria have been worked on by email.

1.10.4.2. There were two conference calls.

1.10.4.3. There were comments made on the down=selection procedure.

1.10.4.4. This week there will be selection process and downselection votes.

1.10.4.5. There will be a joint meeting with 802.19 on Wednesday.

1.11. Other Reports

1.11.1. Publicity – Brian Matthews

1.11.1.1. Will meet Tuesday at 10:30.

1.11.1.2. Will receive updates from WiFi Alliance and Wimedia

1.11.2. 802.18 TAG – Carl Stephenson

1.11.2.1. Report in 802.18 03/001.

- 1.11.2.2. Drafted 802.18 rules.
- 1.11.2.3. Review of output from Hawaii
- 1.11.2.4. This meeting – will prepare documents, and have joint meetings with other meetings.
- 1.11.2.5. Pending issues – FCC spectrum task report comments. There was an extension of time to make comments by the FCC to accommodate this meeting.
- 1.11.2.6. FCC NOI on new unlicensed spectrum.
- 1.11.2.7. Senate and House Bills on Unlicensed Spectrum.
- 1.11.2.8. Discussion
 - 1.11.2.8.1. What is the status of 5GHz for WRC 2003? Still supporting global co-primary. Issues with DFS threshold. It will be a continuing issued until the WRC meeting in June.
 - 1.11.2.8.2. Who petitioned the FCC for the 3GHz spectrum? Nobody - It was FCC internal.
- 1.11.3. 802.19 TAG – Jim Lansford
 - 1.11.3.1. Election of officers this week, policies and procedures.
 - 1.11.3.2. There is a website at IEEE.ORG/19.
 - 1.11.3.3. The reflector is now up.
 - 1.11.3.4. There is a joint session with 802.15.3a this week.
 - 1.11.3.5. Discussion
 - 1.11.3.5.1. Will 802.18 allow member access for private areas to documents to other wireless member? Yes.
- 1.11.4. 802.20 WG – Mark Klerer
 - 1.11.4.1. New Mobile Broadband WG just formed.
 - 1.11.4.2. Voting privileges will start with March plenary.
 - 1.11.4.3. This session is to start building the team.
 - 1.11.4.4. Presentations on cellular standards.
 - 1.11.4.5. Consideration of necessary liaisons.
 - 1.11.4.6. Considering of technology building blocks, not proposals at this point.
 - 1.11.4.7. Discussion of network-level support such as handoff.

1.12. Announcements

- 1.12.1. The room will be divided at this break.
- 1.12.2. See Al Petrick if you have issues with voting status or database.
- 1.12.3. Call for tutorials for the March Plenary.
 - 1.12.3.1. There is an interest in ad-hoc mobile networks working over 802.11 radios. Contact Peter Ecclesine petere@ieee.org if you are interested.
- 1.12.4. Voting Tokens – see Al Petrick for 802.11, Mike McInnis for 802.15. (802.15 is re-printing to a different color)
- 1.12.5. 802.11 will also change the voting token color.

1.13. Adjourn joint meeting at 9:30AM

2. 802.11 Opening Plenary: Monday, January 13, 2003

2.1. Opening

- 2.1.1. The session is called to order by Stuart J. Kerry at 10:00AM.
- 2.1.2. Following agenda in document 02/736r4.

2.1.3. Straw Poll of new attendees for 802.11: There are 17 new attendees.

2.1.4. There are 162 people in the room.

2.2. *IP Statements*

2.2.1. The WG chair calls for any new IP statements.

2.2.1.1. None

2.3. *WG Voter Summary*

2.3.1. Al Petrick presents document 01/402r11.

2.3.2. There are currently 320 voters, with 109 nearly voters. Voting rights only granted at a plenary.

2.3.3. There are 367 aspirants and 785 non-voters.

2.3.4. There are 10 people that have questioned their voting rights. They should meet with Al Petrick at 1:00PM today.

2.3.5. These voting memberships are at the start of the week.

2.4. *Agenda*

2.4.1. The WG chair reviews the agenda.

2.4.2. Any objection to adopting the agenda? None. The agenda is adopted.

2.5. *Approval of minutes of Kauai*

2.5.1. Motion to approve the minutes:

2.5.1.1. John Rosdahl, Amjad S

2.5.2. Minutes approved without objection

2.5.3. No matters arising from the minutes

2.6. *Documentation update*

2.6.1. Reminder to not open documents on the server.

2.6.2. Formatting must be correct. Templates are on the server in the Documents area.

2.6.3. Formats are MS Word, Excel, and PowerPoint. PDF is only for drafts.

2.7. *Standardization Roll-up*

2.7.1. The 802.11-1999 re-affirmation ballot passed.

2.7.2. 76 votes, 82% return rate , 6% abstain.

2.7.3. 68 yes, 2 no, 5 abstain.

2.7.4. 97% affirmative.

2.8. *New Business*

2.8.1. Discussion and approval of maintenance par for 802.11-2003.

2.8.1.1. Bob O'Hara presents document 03/014.

2.8.1.2. This task group will handle the response to interpretation requests to the IEEE. The WG has to provide a formal response.

2.8.1.3. Informal Discussion

2.8.1.3.1. How do we handle submissions of issues that will be fixed?

- 2.8.1.3.2. This will be a new formation of a balloting group.
- 2.8.1.3.3. Does this mean a new task group is formed? Yes – there will be a new task group. It could be handled by the overall WG, but that is not a good use of time.
- 2.8.1.3.4. Is this an ongoing group that continues forever? Would it be better constituted as a standing committee? It depends on what the output is. An SC can't create an official IEEE document. If the group needs to make a new version of the standard, it must be a TG.
- 2.8.1.3.5. How do you keep an ongoing TG? A new PAR is approved after the publication of each version.
- 2.8.1.3.6. The idea might be a "standing PAR". This could have merit in quickly addressing issues that are found in the standard. Not sure what a "standing PAR" is – we are bound to the rules "one PAR, one document".
- 2.8.1.4. Motion: To pre-submit the PAR for maintenance of 802.11-1999 (reaff. 2003) in document 03/014 on the SEC agenda for March 2003.
 - 2.8.1.4.1. Motion ID 379
 - 2.8.1.4.2. Moved Bob O'Hara
 - 2.8.1.4.3. Second Jon Rosdahl
- 2.8.1.5. Discussion
 - 2.8.1.5.1. Does this mean we have to select a chair? We do need a name. We will ask for volunteers. We will vote on Friday if needed.
 - 2.8.1.5.2. What exactly will be open for discussion, technically? How can this be limited to updating errors, and not adding new features? It is limited by the scope of "corrections" to the documents. You couldn't define a new PHY, or add new MAC functions. It is just corrections and ambiguities.
 - 2.8.1.5.3. The chair notes that "requests for interpretations are sent to a designated interpretations sub-group" according to the rules.
- 2.8.1.6. Vote on the motion: Passes 95 : 0 : 0
- 2.8.1.7. Any other volunteers for the chair of this group? None.
- 2.8.1.8. Bob O'Hara is nominated for the chair of the Maintenance PAR.
- 2.8.1.9. Bob O'Hara is approved by acclamation.

2.8.2. WiFi Alliance Message

- 2.8.2.1. A message from WiFi Alliance is addressed to the chair of IEEE 802 on the subject of "IEEE 802g Standard Approval Process" is presented and reviewed.
 - 2.8.2.1.1. The issue is that many companies wish to introduce 802.11g products, and request timely approval of the standard.
 - 2.8.2.1.2. The expected schedule is reviewed, showing a final approval in June-July 2003.
 - 2.8.2.1.3. The appropriate WiFi conformance test plans schedule are coordinated with the IEEE approval schedule.
- 2.8.2.2. Discussion on the letter
 - 2.8.2.2.1. Will this be entered as a submission with a document number? Yes.
 - 2.8.2.2.2. Will there be an answer to the letter? The publicity group is tasked with coordinating with 802.11g to draft a response.

2.9. The session is recessed at 10:25AM

3. Wednesday Plenary Session, January 15, 2003

3.1. Opening

- 3.1.1. The meeting is called to order at 10:30AM by Stuart J. Kerry.
- 3.1.2. The chair reviews the agenda in 02/736r4.
- 3.1.3. There are 94 people on the left side.

3.2. Announcements

- 3.2.1. The chair calls for any new IP statements. No new letters have been received.
 - 3.2.1.1. No members offer new IP statements.
- 3.2.2. The CAC meeting at 7:00AM tomorrow.
- 3.2.3. Attendance Server – we have only had about 10 people having problems. The system seems to be working
 - 3.2.3.1. We are having software developed to improve attendance reporting, and voter database management, documentation, etc. The plan is to start this month, alpha in March, beta in May, and release in July.
 - 3.2.3.2. If there are any issues with your contact information, see Al Petrick.
- 3.2.4. Documentation: There are problems with “creative” formatting. From now on, documents will be deleted off the server if incorrect. We don’t have time to fix them. Members must format documents correctly. Those who submit incorrect documents will not be notified if the document is deleted.
- 3.2.5. PAR timelines
 - 3.2.5.1. Al Petrick reviews document 01/423r6
 - 3.2.5.2. We are going to track the PAR status more closely going forward. We will start using MS project to track times and durations.
 - 3.2.5.3. We will add TGj and TGk after this meeting.

January 2003

doc.: IEEE 802.11-01/423r6

IEEE 802.11 PAR(s) Timeline

Al Petrick

PAR Timelines

- Summary and role up....
- More accurately track times using MS project
- Timeline correlation with IEEE 802 SEC
- Current active IEEE 802.11 PARs are 2 years late with respect to submitting to REVCOM

IEEE 802.11 PAR(s) Timeline Summary

Active PAR Timeline for P802.11 Rev Date: 1/15/03		WG Chair: Stuart Kerry					
Task Groups		PAR Approved	WG Letter Ballot	Sponsor Letter Ballot	Sponsor Letter Ballot Recirc	Submit to REVCOM	REVCOM Schedule Slip
IEEE 802.11b Corrigendum-1	Original Forecast	Jan-2000				Oct-2001	
	Current Forecast	Jan-2000	March-2000	Dec-2000	Jan-2001	Sept-2001 Completed	1 month
IEEE 802.11e - QoS Enhancements	Original Forecast	March-2000				July-2001	
	Current Forecast	March-2000	April-2001	May-2003	July-2003	Sept-2003	26 months
IEEE 802.11d - Regulatory Domain	Original Forecast	June-1999				June-2001	
	Current Forecast	June-1999	March-2000	Dec-2000	Jan-2001	July-2001 Completed	13 months
IEEE 802.11f - Inter-Access-Point-Protocol	Original Forecast	March-2000				July-2001	
	Current Forecast	March-2000	April-2001	Nov-2002	March-2003	June-2003	23 months
IEEE 802.11g-Higher-Rate	Original Forecast	Sept-2000				Nov-2001	
	Current Forecast	Sept-2000	Jan-2001	March-2001	Oct-2001	June-2003	27 months
IEEE 802.11h- 5GHz 802.11a	Original Forecast	Nov-2000				March-2002	
	Current Forecast	Nov-2000	Jan-2001	July-2001	Nov-2002	March-2003	27 months
IEEE 802.11i - Security Enhancements	Original Forecast	March-2000				July-2001	
	Current Forecast	March-2000	April-2001	July-2003	Sept-2003	Dec-2003	29 months

3.2.6. Re-affirmation Ballot

- 3.2.6.1. We are asking the IEEE to address the two negative comments by putting them into the maintenance PAR.
- 3.2.6.2. If we don't compete this activity, we cannot approve TGg and TGh.

3.3. *Approve or modify the Agenda*

3.3.1. The chair presents the current agenda graphic.

3.3.2. Motion to amend the Agenda, whereas TGf releases Thursday AM and first Thurs PM. Therefore TGi to use the Thursday AM, and therefore HTSG to use the first Thursday PM Thursday.

- 3.3.2.1. Motion ID 380
- 3.3.2.2. Jon Rosdahl
- 3.3.2.3. David Halasz
- 3.3.2.4. There is a possibility of an additional change. TGf may also release additional time, in which case HTSG would like to use it.

3.3.3. Discussion

- 3.3.3.1. Motion to amend: to add time for TGe.
 - 3.3.3.1.1. The chair of TGe does not request any more time. The motion is out of order
- 3.3.3.2. TGh wishes to release two slots on Thursday.
 - 3.3.3.2.1. Any objection to "friendly amendment" = None.

3.3.4. Motion now on the floor:

3.3.5. Motion to amend the Agenda, whereas TGf releases Thursday AM and first Thurs PM. And TGH releases Thursday AM and first Thursday PM. Therefore TGi to use the Thursday AM, and therefore HTSG to use the first Thursday PM Thursday. Note: TGf MAY also release last Thursday time. If that happens the chair of HTSG will use it.

3.3.6. Discussion

- 3.3.6.1. The TGg chair notes that at Kauai we passed a motion to not schedule TGg and HTSG simultaneously. Suggests that HTSG and TGf reverse positions.
- 3.3.6.2. The HTSG chair realizes there is a conflict. If we realize that the Thursday sessions are not needed, we would relinquish the second Thursday afternoon slot. If we don't overlap TGg and take the one slot, the overlapping slot would be unusable by anyone due to the 24 hour rule and agenda approval requirements.

3.3.7. The WG chair calls for a short recess to discuss among the TG chairs.

3.3.8. The WG chair suggests that we fix this in one big lump. The TG chairs have agreed on a new agenda:

3.3.9. Motion as amended:

- 3.3.9.1. Where as TGf Releases Thursday AM and Thurs PM
- 3.3.9.2. And TGH releases Thurs AM and 2nd Thurs PM
- 3.3.9.3. Therefore TGI to use the Thursday AM
- 3.3.9.4. And Therefore HTSG to use the 2nd Thurs PM
- 3.3.9.5. And Therefore TGe to use the AM Thurs
- 3.3.9.6. And Therefore TGk to use the remaining 2 open sessions on Thurs

3.3.10. Is there any objection to accept the motion?

- 3.3.10.1. None
- 3.3.10.2. The motion is accepted with unanimous consent.
- 3.3.11. The new agenda is in 02/736r5.
- 3.3.12. Any objection to accept the agenda as modified?
 - 3.3.12.1. None
 - 3.3.12.2. The agenda is approved with unanimous consent.

3.4. New Business

- 3.4.1. TGk
 - 3.4.1.1. The chair of TGk wishes to conduct teleconferences.
 - 3.4.1.2. Motion: To allow the 802.11k Task Group to conduct teleconferences on Wednesdays at 8am pacific between 802.11 meetings through the year 2003.
 - 3.4.1.2.1. Moved Richard Paine on behalf of TGk
 - 3.4.1.2.2. Motion ID 381
 - 3.4.1.3. Discussion
 - 3.4.1.3.1. None
 - 3.4.1.4. Vote: passes 115: 0 : 2
- 3.4.2. ANA– Duncan Kitchin
 - 3.4.2.1. Task groups have not made official request for elements and codes. The ANA editor has reviewed the current drafts and reconciled overlaps.
 - 3.4.2.2. Document 02/301r3
 - 3.4.2.3. We now have a new listing of Capability Information
 - 3.4.2.4. We have defined an extended capability field that is also tracked in this document. However we don't use it yet.
 - 3.4.2.5. We would like to release it to give us some spares.
 - 3.4.2.6. The reason codes and status codes have been resolved to eliminate conflicts.
 - 3.4.2.7. For element IDs, there are a lot assigned in this list. There are many vendor-specific IDs in use. Wishes to get them added to this list. If you know of any vendor-specific codes, please notify Duncan Kitchin.
 - 3.4.2.8. Motion: Request the ANA to release the "escape" capability bit.
 - 3.4.2.8.1. Moved Duncan Kitchin
 - 3.4.2.8.2. Second Srin Kandalas
 - 3.4.2.8.3. Motion ID 382
 - 3.4.2.9. Discussion
 - 3.4.2.9.1. Why release this bit instead of the extended capability field so it is consistent? Because this bit doesn't do anything. It is redundant.
 - 3.4.2.9.2. When we fill up the extended field, what do we do? We add another extended capability field.
 - 3.4.2.9.3. Confirming that this is bit 15? Yes.
 - 3.4.2.10. Vote: passes 92 : 0 : 11.

3.5. Closing Announcements

- 3.5.1. Regarding the HTSG chairman. We are looking for a chair only. Nominations are still open. If there are multiple nominations for the TG chair, we will have multiple rounds of voting, dropping the lowest vote in each round until one has the majority.
 - 3.5.1.1. Matthew Shoemake is nominated as potential chair by Jon Rosdahl.
- 3.5.2. At the time the PAR and 5 criteria are approved by the SG, we will ask for the vote for the chair.

- 3.5.3. The HTSG will not be TGm, as it is reserved for the Maintenance PAR. We will not use L due to graphical confusion.
- 3.5.4. The WG chair announces the results of LB52
 - 3.5.4.1. Yes 76.28%, No 23.72, Abstain 7.12
 - 3.5.4.2. Voting members 321, Total Returned 295, Return percentage 91.9
 - 3.5.4.3. There are a number of comments. We don't expect a recirculation ballot until March.
 - 3.5.4.4. An interim meeting may be scheduled before the march meeting.
 - 3.5.4.5. One AES algorithm has been removed by a vote in TGi.

3.6. Recess for at 11:20AM

4. Friday Closing Plenary, January 17, 2003

4.1. Opening

- 4.1.1. The meeting is called to order by Stuart J. Kerry at 8:00A.
- 4.1.2. The Chair reviews the agenda for this session.
 - 4.1.2.1. This is 736r6. There is no change from R5
 - 4.1.2.2. All TG have 11 minutes each.
 - 4.1.2.3. The agenda is adopted without objection
- 4.1.3. The CAC members are reminded of the upcoming meetings.
- 4.1.4. There are 229 people present.

4.2. Announcements

- 4.2.1. Documentation – We are already over 100 documents. There are still formatting problems. They will be returned to the creator by email.
- 4.2.2. Electronic Attendance discrepancies or contact information – contact Al Petrick apetrick@icefyre.com.
- 4.2.3. Software development project. We will review the contract from Ideal. We have money in the budget allocated.
- 4.2.4. September Interim meeting. Under consideration:
 - 4.2.4.1. Ottawa Canada by Icefyre
 - 4.2.4.2. Microsoft sponsored on East Coast (TBD)
 - 4.2.4.3. Ottawa is current first choice.
- 4.2.5. May 2004 – considering Korea, sponsored by Samsung.
- 4.2.6. Nominations for High Throughput Task Group
 - 4.2.6.1. Bruce Kraemer
 - 4.2.6.2. Matthew Shoemake
 - 4.2.6.3. Nominations will not close until the opening session in March at Dallas.
 - 4.2.6.4. If there are multiple candidates, we will have multiple votes, dropping the lowest in each round, until a 50% majority is reached.
- 4.2.7. IP Statements. The WG chair has not received any IP statements. Are there any new statements? None.
- 4.2.8. Web Site changes:
 - 4.2.8.1. 802.11 members now have access to 15, 16, 17, 18, 19. 20. Only 802.3 is not allowing access.

4.2.8.2. A new user name and password will be sent out in the next two weeks.

4.2.8.3. The operating rules are in HTM version and PDF.

4.2.9. Future meetings

4.2.9.1. Dallas, March

4.2.9.2. Singapore, May

4.2.9.3. San Francisco, July,

4.2.9.4. Albuquerque, November.

4.3. *Reports from Task Groups*

4.3.1. TGe – John Fakatselis

4.3.1.1. Concentrated on comment resolution for LB 51.

4.3.1.2. Resolved 193 out of 1173 technical comments.

4.3.1.3. There are 646 editorial comments.

4.3.1.4. There will be an Ad Hoc meeting in February.

4.3.1.5. Official Announcement: February 24th until Feb 27th in Portland Oregon. Hosted by Intel and Sharp. Purpose is continuing comment resolution.

4.3.1.6. Objective for next meeting. Continue comment resolution, and try for recirculation

4.3.1.7. Discussion

4.3.1.8. How many addressed comments were technical? All 193 comments were technical.

4.3.1.9. Will the comment resolutions done so far be available? Yes, they are on the server. 03/063r2, 064r2, 065r2, and 103r0. Document 03/020r3 will combine all resolutions, but not available yet.

4.3.1.10. This is the first meeting ever where TGe did not have a point of order.

4.3.2. TGf – Jon Rosdahl

4.3.2.1. Report in 03/010r10

4.3.2.2. Sponsor Ballot had completed. Return rate of 84%, 94% affirmative.

4.3.2.3. Goal was to review results, and process comments.

4.3.2.4. Resolutions are in 03/009r3.

4.3.2.5. There were 20 comments, 15 were accepted, 3 partially, 2 declined.

4.3.2.6. The TGf chair requests the membership list from the WG chair to address the coordination comments. The editors are already working on it.

4.3.2.7. Actions 1: TGf asks the WG chair to accept the comment responses to RC1, and conduct a 10 day recirculation ballot

4.3.2.8. Action 2: TGf asks the WG chair to pre-submit TGf draft 5.0 to the RevCom agenda.

4.3.2.9. The WG chair accepts action 1. The WG chair assigns action 2 to the ExCom recording Secretary, Bob O'Hara.

4.3.2.10. TGf received requested numbers from other authorities.

4.3.2.11. IANA multicast address, and Radius attribute values.

4.3.2.12. Believe we have all necessary numbers for the draft.

4.3.2.13. Output documents 03/009r3 comment report

4.3.2.14. Minutes of TGf 03/011.

4.3.2.15. TGf Draft 5.0 is on the server.

4.3.2.16. March Objectives – do whatever is needed based on RC2 sponsor recirculation ballot. Will submit to Rev Com

4.3.2.17. Discussion

- 4.3.2.18. Did the pre-caching proposal get included? Yes.
- 4.3.3. TGg – Matthew Shoemake
 - 4.3.3.1. Document 03/141
 - 4.3.3.2. Letter Ballot 50 comment resolution
 - 4.3.3.2.1. Adopted resolutions on all 352 comments
 - 4.3.3.2.2. Comment resolutions are available in doc. 11-03-068r12
 - 4.3.3.3. Status of the Draft
 - 4.3.3.3.1. Based on comment resolutions, the draft has been updated to 6.0r1 (both version are on the server, but 6.0r1 is correct).
 - 4.3.3.3.2. The draft meets the 4 hour requirement to be voted on at this session
 - 4.3.3.4. Schedule
 - 4.3.3.4.1. The detailed IEEE 802.11g schedule is available in document 11-03-073.
 - 4.3.3.4.2. As of today, current revision is 11-03-073r1
 - 4.3.3.4.3. There is enough time to have a recirculation and sponsor ballot before the next RevCom.
 - 4.3.3.5. Request that the ANA issue 802.11g three new status codes and one new element ID. (Status codes requested are 25-27 and element ID number requested is 50.)
 - 4.3.3.5.1. This TGg motion passed by unanimous consent in TGg. Noted here for the minutes.
 - 4.3.3.6. Next meeting objectives
 - 4.3.3.6.1. Resolve comments,
 - 4.3.3.6.2. Update to Draft 7.0
 - 4.3.3.6.3. Request Sponsor Recirculation Ballot.
- 4.3.4. TGh – Mika Kasslin
 - 4.3.4.1. Report in document 136r1
 - 4.3.4.2. Draft 3.0 sponsor ballot is extended until January 23rd. Still missing 10 or 11 votes to get 75% return rate.
 - 4.3.4.3. Processed all comments received so far (45). All comments have been reviewed,
 - 4.3.4.4. There will be a teleconference after the ballot closes to review any additional comments.
 - 4.3.4.5. Teleconference on February 13th. Will be on the reflector, with all information.
 - 4.3.4.6. March Objectives.
 - 4.3.4.6.1. Resolve all comments
 - 4.3.4.6.2. Submit updated draft to Recirculation Sponsor Ballot.
- 4.3.5. TGi – David Halasz
 - 4.3.5.1. Closing report in 03/139.
 - 4.3.5.2. LB52 passed with 76%.
 - 4.3.5.3. Over 2000 comments.
 - 4.3.5.4. WRAP was removed from the draft.
 - 4.3.5.5. Worked in sub-groups for comment resolution.
 - 4.3.5.6. Ad-Hoc meeting February 19,20, 21, in Seattle WA.
 - 4.3.5.7. Objective – resolve comments, and conduct recirculation ballot.
- 4.3.6. TGj – Sheung Li
 - 4.3.6.1. Report in document 03/126
 - 4.3.6.2. Elected Task Group leadership, reviewed PAR, 5 criteria.

- 4.3.6.3. A very contained scope. The evaluation criteria is limited to the 4.9 and 5GHz bands in Japan.
- 4.3.6.4. The standard is expected to be complete. It will define standards for all modes defined in the band – including 5Mhz, 10Mhz, and 20Mhz.
- 4.3.6.5. Next Session Objectives.
 - 4.3.6.5.1. technical presentations
 - 4.3.6.5.2. Review and Approve Draft 1.0
 - 4.3.6.5.3. Further Technical Presentations
 - 4.3.6.5.4. Issue WG Letter Ballot
- 4.3.7. TGk – Richard Paine
 - 4.3.7.1. Report in document 03/140
 - 4.3.7.2. Voted in leadership of TG (Harry Worstell, Sec, Simon Barber, Editor)
 - 4.3.7.3. 17 technical presentations
 - 4.3.7.4. Weekly teleconferences are scheduled for Wednesday s at 8:00AM pacific.
 - 4.3.7.5. Nearing draft on vision and architecture.
 - 4.3.7.6. Milestone – specification in May.
 - 4.3.7.7. Discussion
 - 4.3.7.7.1. The WG chair Request to notify conference calls on reflector
- 4.3.8. WNG – TK Tan
 - 4.3.8.1. Report in 03/035
 - 4.3.8.2. Presentations on Smart Antennas
 - 4.3.8.3. Updates from ETSI/BRAN, MMAC, IAG, WIG, Radio Reg
 - 4.3.8.4. Discussed whether to create task group for Wireless InterWorking. Decision to continue as Standing Committee.
 - 4.3.8.5. Baseline WIG document 04.004.
 - 4.3.8.6. WIG2 in Japan was postponed.
 - 4.3.8.7. Objectives for Dallas
 - 4.3.8.7.1. Updates from organizations, possibly adding 3GPP
 - 4.3.8.7.2. Discussion on VoIP smart Antenna
 - 4.3.8.8. Request from WG chair to establish liaison with 3GPP SA2. Volunteer Farooq Bari.
 - 4.3.8.8.1. The WG Chair has added him to the list.
 - 4.3.8.9. Presentation of a letter requesting information from 3GPP SA2. (document 03/132r0)
- 4.3.9. Publicity – Brian Matthews
 - 4.3.9.1. Report in 03/039
 - 4.3.9.2. Held meeting on Tuesday. Completed agenda
 - 4.3.9.3. Received WiFi alliance update
 - 4.3.9.4. Discussed relation of 802.11i and WPA
 - 4.3.9.5. WiMedia Alliance presented an update. Requesting WiMedia to work with IEEE 1394 to make 802.15.3 the wireless transport for IEEE 1394
 - 4.3.9.6. Tutorial on 802.15 website.
 - 4.3.9.7. Preparing for Singapore. Visitors from government and press. Will prepare handouts and posters.
 - 4.3.9.8. Objectives for May. Review preparations for Singapore. Receive Reports, and prepare for updating 802news website.
 - 4.3.9.9. Discussion

- 4.3.9.9.1. There was a wireless 1394 demonstration using 802.11a. Why has 802.11 handed wireless 1394 to 802.15? Nothing is official – it was one individual's viewpoint.
- 4.3.9.9.2. The WG chair states that we will continue activity with our 1394 liaison in this group.
- 4.3.9.9.3. What is the tutorial on the 802.15 web site? It will be posted to the reflector as a link.
- 4.3.9.10. The WG chair asks the publicity group to coordinate with IEEE to develop a position on manufacturers claiming conformance to a draft standard.
- 4.3.10. HTSG – Jon Rosdahl
 - 4.3.10.1. Report in 03/012
 - 4.3.10.2. 8 submissions on the PAR and 5 criteria
 - 4.3.10.3. Output – draft PAR, Criteria Response, Report, and Minutes.
 - 4.3.10.4. Had a WG motion to approve the PAR and 5 Criteria.
 - 4.3.10.5. Objectives for March – resolve WG LB comments, create new Task Group.
- 4.3.11. ANA – Duncan Kitchin
 - 4.3.11.1. Report in 02/381r4, will be superceded by r5
 - 4.3.11.2. Removed capability bit 15
 - 4.3.11.3. Added new codes for TGg
 - 4.3.11.4. Will have motion to assign new element IDs.
 - 4.3.11.5. Discussion
 - 4.3.11.5.1. Is there any reason why we don't get vendors to move their codes.

4.4. Task Group Motions

4.4.1. TGg Motions

- 4.4.1.1. The draft is renamed from 6.0r1 to 6.1.
 - 4.4.1.1.1. This is a name change only, no content change.
 - 4.4.1.1.2. Change is made with no objection.
- 4.4.1.2. Discussion
 - 4.4.1.2.1. What is the earliest time it could be put out? It is ready now? This will be LB54
- 4.4.1.3. Move to request a 15-day Working Group recirculation ballot on Draft 6.1 of IEEE 802.11g with an opening date of January 20, 2003 and a closing date of February 6, 2003.
 - 4.4.1.3.1. Matthew Shoemake on behalf of TGg
 - 4.4.1.3.2. Discussion
 - 4.4.1.3.2.1. When was this on the server? Last Night 7:00PM. The chair states that there was a witness that affirms it went on at 7:00 Session Time.
 - 4.4.1.3.3. Vote: Passes 105: 0 : 0
- 4.4.1.4. Move to request an 802 ExCom e-mail ballot on the question of conditional approval to forward to sponsor ballot (Procedure 10) Draft 6.1 of IEEE 802.11g.
 - 4.4.1.4.1. Matthew Shoemake on behalf of TGg
 - 4.4.1.4.2. Discussion
 - 4.4.1.4.2.1. Do you expect no changes from recirculation? This is according to Procedure 10. It requires the WG chair do certain things and meet certain requirements. Regarding rejecting comments, there is a motion to reject comments if they meet the procedure 10

requirements. There are strict requirements for what these comments must be in procedure 10.

4.4.1.4.2.2. The WG chair notes that this procedure is dependent on the SEC voting on it. If it fails the vote, it does not go forward.

4.4.1.4.3. Vote: Passes 105 : 1 : 0

4.4.1.5. Whereas IEEE 802.11 Task Group G would like to have Sponsor Ballot comments to resolve at its March 10-14, 2003 session... Contingent upon obtaining Procedure 10 approval for 802.11g and contingent upon execution of the 15-day recirculation ballot on Draft 6.1 and contingent upon meeting all the requirements of Procedure 10, reject all comments submitted on the 15-day recirculation ballot and request a 30-day Sponsor Ballot on 802.11g Draft 6.1 with a targeted starting date of February 7, 2003.

4.4.1.5.1. Matthew Shoemake on behalf of TGg

4.4.1.5.2. Discussion

4.4.1.5.2.1. The TGg chair notes that rejecting all comments does not reject them out of hand. There are strict requirement on what comments can be rejected. New technical issues in comments would invalidate the procedure 10. We will not reject comments that do not meet the requirements of procedure 10.

4.4.1.5.2.2. If new technical issues come up, you can't carry out this procedure. How do you know if new technical issues come up? It is up to the WG chair to determine this. The WG chair must notify the SEC in that case.

4.4.1.5.2.3. The WG chair affirms that that is correct and reviews the specific conditions. The procedure is being followed correctly.

4.4.1.5.2.4. It would have been better to see procedure 10 on the screen.

4.4.1.5.3. Vote: Passes 97 : 0 : 6

4.4.1.6. In response to the WFA letter to the IEEE 802 Executive Committee (doc. 11-03-077), move to forward the draft response in doc. 11-03-123r2 to the WiFi Alliance Board of Directors.

4.4.1.6.1. Matthew Shoemake on behalf of TGg

4.4.1.6.2. Motion is withdrawn.

4.4.1.6.2.1. The WG Chair will forward this document automatically. Assigned to Publicity Chair.

4.4.1.7. Move to request publication of draft 6.1 of IEEE 802.11g immediately following the January 2003 session.

4.4.1.7.1. Matthew Shoemake on behalf of TGg

4.4.1.7.2. Vote: Passes 102 : 2 : 3

4.4.1.8. There is an issue with Line Numbers in draft 6.1. The editor requests unanimous consent to add line number to the whole document.

4.4.1.8.1. Moved Carl Andren

4.4.1.8.2. Second Matthew Shoemake

4.4.1.8.3. Vote: Passes with unanimous consent.

4.4.2. WNG Motions

4.4.2.1. Move to forward the liaison letter 03-132r0 to Puuskari Mikko, Chair of 3GPP SA2.

4.4.2.1.1. Moved TK Tan

4.4.2.1.2. Second Jon Rosdahl

4.4.2.1.3. Vote: Motion passes by Unanimous Consent

4.4.3. HTSG Motions

- 4.4.3.1. Move to conduct a WG Letter ballot to approve 02-798r2 (PAR) and 02-799r2 (5 Criteria) and WG Chair to pre-submit to the executive committee for the March 2003 SEC meeting by 2-7-03 for the purpose of creation of the High Throughput Task Group.
- 4.4.3.1.1. Moved Jon Rosdahl on behalf of HTSG
- 4.4.3.1.2. Discussion
 - 4.4.3.1.2.1. This will be a 40 Day Letter Ballot LB55.
 - 4.4.3.1.2.2. Nominations for the High Throughput Task Group are still open
 - 4.4.3.1.2.3. Jon Rosdahl will continue as Pro Tem Chair.
 - 4.4.3.1.2.4. Does the SG expire before or after the March Plenary? The group will run as a SG, but conduct TG work. The SG does not expire until the end of the March Meeting.
- 4.4.3.1.3. Vote: 104 : 0 : 1

4.5. Reports from Liaisons

4.5.1. 802.1 – Dave Halasz

- 4.5.1.1. Nothing

4.5.2. 802.15 to/from 802.11 – Mike Seals

- 4.5.2.1. 03/110r0
- 4.5.2.2. TG2 Letter Ballot (LB23 in 15) and 11.
 - 4.5.2.2.1. There are 21 No-Voters from 802.11 – trying to contact.
 - 4.5.2.2.2. There are 4 in 802.15 that have not answered.
 - 4.5.2.2.3. Anticipate Sponsor ballot after this meeting
- 4.5.2.3. TG3 – have addressed and resolved all comments from Sponsor Ballot. Will edit draft, and go to Recirculation ballot before March.
- 4.5.2.4. TG3a. There is a call for proposals – due by Feb 3, 2003. Edited requirements, criteria, and down selection process.
- 4.5.2.5. TG4 completed sponsor ballot comment resolution. Chair moves to Pat Kinney. Will conduct recirculation ballot. Only had 2 comments.
- 4.5.2.6. There is a low power UWB discussion group.
 - 4.5.2.6.1. There was a presentation from European Pulsers initiative.
 - 4.5.2.6.2. Will form SG in March.
- 4.5.2.7. Discussion
 - 4.5.2.7.1. This effort low power UWB will move forward as 4a as a study group is formed.

4.5.3. 802.15.3a – special Liaison

- 4.5.3.1. Atul Garg has been assigned for this by Bob Heile

4.5.4. 802.16 – Mika

- 4.5.4.1. Nothing

4.5.5. 802.18 – Carl Stephenson

- 4.5.5.1. Report in 802.18-03/007
- 4.5.5.2. Held brief joint sessions WNG SC (Denis Kuwahara)
- 4.5.5.3. Prepared and approved 2 regulatory filings for FCC
 - 4.5.5.3.1. 18-03-005r0-80218_Cmts_SPTF_Report.doc
 - 4.5.5.3.2. Comments on FCC SPTF Report
 - 4.5.5.3.3. 18-03-006r0-80218_Cmts_ET-02-380.doc
 - 4.5.5.3.4. Comments on FCC NOI on unlicensed spectrum
 - 4.5.5.3.5. Opportunistic sharing of unused TV channels
 - 4.5.5.3.6. Possible allocation of 3650-3700 MHz band for unlicensed

4.5.5.4. March Objectives

4.5.5.4.1. Prepare regulatory documents as time permits (will prioritize at 802.18 opening plenary)

4.5.5.4.2. Hold joint meetings with other groups, if requested

4.5.5.4.3. Try to finalize draft of 802.18 operating rules for TAG vote and submission to SEC for review and vote at March 2003 802 Plenary

4.5.5.4.3.1. plan to work via e-mail correspondence, with conference calls if necessary to further progress work between now and the March Plenary meeting

4.5.5.5. Discussion

4.5.5.5.1. None

4.5.6. Recess for break at 9:55AM

4.5.7. The meeting is called back to order at 10:15AM

4.6. Reports from Liaisons

4.6.1. WiFi Alliance – Bill Carney

4.6.1.1. Sheung Li has dropped as the other WFA liaison

4.6.1.2. Document 03/053r0

4.6.1.3. Certify and promote wireless LAN

4.6.1.4. Goals for 1Q03

4.6.1.4.1. Launch WiFi Zone pilot program

4.6.1.4.2. 11g test bed

4.6.1.4.3. WPA test bed

4.6.1.4.4. Finalize overall plans for 2003

4.6.1.5. Task Groups

4.6.1.6. 11e certification John Kowalski

4.6.1.7. 11i certification Bruce Alexander

4.6.1.8. 11g certification Mike Paljug

4.6.1.9. Security Certification

4.6.1.10. WFA has adopted WiFi Protected Access (WPA). Testing date will start in March 2003. Mandatory in August 2003. Applies to both 2.4G and 5G bands

4.6.1.11. Actions from November Plenary. Questions and Answers:

4.6.1.11.1. Q1: Wi-Fi wants to point to a document that is not complete. What happens if the document changes? Is Wi-Fi locking devices into the current draft?

4.6.1.11.2. A1: The documentation produced by the Wi-Fi Alliance regarding Wi-Fi Protected Access points to items in the IEEE 802.11i draft v3.0, that is presently in development. By releasing a test covering a subset of the features in this draft now, WLAN users will benefit from increased security that is the result of the work done by IEEE 802.11i to date. It is the intention to ensure forward compatibility with the final standard for 802.11i.

4.6.1.11.3. Q2: The IEEE has clear statements and rules to accessing information. Will Wi-Fi Alliance be passing any information back to 802.11?

4.6.1.11.3.1. A2: Wi-Fi Protected Access documentation is available to Wi-Fi Alliance member companies free of charge. For all others, the documentation is available for download from the Wi-Fi Alliance website (<http://www.wi-fi.org>) for a nominal fee of US\$25.

4.6.1.12. 802.11a certification

4.6.1.12.1. Lab started accepting test applications on 10/18/02

4.6.1.12.2. Testing commenced on 11/29/02

- 4.6.1.12.3. Tests are conducted at San Jose Agilent Lab
- 4.6.1.12.4. Test bed consists of: Four access points Four station cards. Products from six companies using three different chipset technologies
- 4.6.1.12.5. Dual-band testing also started on 11/29/02 Includes inter-band handoff capability
- 4.6.1.12.6. Six 5GHz Wi-Fi Certified products in 2002
- 4.6.1.13. About WFA
 - 4.6.1.13.1. Membership
 - 4.6.1.13.1.1. 202 Total Member Companies
 - 4.6.1.13.1.2. 11 Sponsor Members (Board)
 - 4.6.1.13.2. Products
 - 4.6.1.13.2.1. 605 Certified Products since inception
 - 4.6.1.13.2.2. (374) total certifications in 2002
 - 4.6.1.13.2.3. (6) 802.11a products certified (including dual band)
 - 4.6.1.13.3. Next two meetings:
 - 4.6.1.13.3.1. March 4 – 6, 2003, Munich, Germany
 - 4.6.1.13.3.2. June 3 –5, 2003, Vancouver, BC, Canada
 - 4.6.1.13.4. <http://www.wi-fi.org>
- 4.6.1.14. Discussion
 - 4.6.1.14.1. The WG chair notes that we should have cross-linking of our web-sites for the documents. Suggests taking that back to WFA. Bill will take request back to WFA.
 - 4.6.1.14.2. Is the March meeting the same time as CEBIT? No, CEBIT overlaps the March 802 plenary.
 - 4.6.1.14.3. Can WFA comment on the 54g organization? No. Will go back to WFA to see if there is a formal relationship between WFA and 54g.org?
- 4.6.2. CableLabs - Lior Ophir
 - 4.6.2.1. Report in 03/116r0
 - 4.6.2.2. CableLabs has been certifying home gateways with CableHome 1.0
 - 4.6.2.3. Follow CableHome progress and update CableHome team.
 - 4.6.2.4. Discussion
 - 4.6.2.4.1. None
- 4.6.3. JEDEC JC61 - Tim Wakeley
 - 4.6.3.1. Document 03/105
 - 4.6.3.2. Standardized interfaces for wireless devices.
 - 4.6.3.3. MAC-PHY interface ballot – failed
 - 4.6.3.4. BB-radio ballot received 125 comments
 - 4.6.3.5. Voted to not support ICMA draft
 - 4.6.3.6. Formed regulatory committee
 - 4.6.3.7. Action Items – update BB draft and submit new LB.
 - 4.6.3.7.1. Research FCC FAQs
 - 4.6.3.7.2. Merge BB-radio and UL MAC interface.
 - 4.6.3.7.3. Meeting March 7-8 in Dallas.
- 4.6.4. 802.11 to IETF – Dorothy Stanley
 - 4.6.4.1. Accepted as new Liaison
- 4.6.5. Nomination of Yasuhiko Inoue, research eng from NTT to be liaison between 802.11 and MMAC.
- 4.6.6. 802.19 – Jim Lansford
 - 4.6.6.1. Presentation in 802.19/03/004

- 4.6.6.2. Documents and attendance are set up for new .19 group
- 4.6.6.3. Liaison with TIA for coordinating cordless phones
- 4.6.6.4. Draft of charter and op rules on server
- 4.6.6.5. Held joint meeting with 802.15.3a on coexistence issues
- 4.6.6.6. Dallas Plans
 - 4.6.6.6.1. Officer election
 - 4.6.6.6.2. Charters, policy, procedures
 - 4.6.6.6.3. Joint meetings with 15.3a, and 11 HT group.
 - 4.6.6.6.4. Modeling efforts for interference and coexistence.
- 4.6.6.7. Discussion
 - 4.6.6.7.1. None

4.7. WG Motions

4.7.1. ANA Motions

- 4.7.1.1. Motion: Request the assignment of element IDs, preferably 0x85, 0x86, 0x87, 0x88, 0x95, 0x96, 0x9b and 0x9c for use by Cisco, element IDs, preferably 173, 176, 178 and 179, for use by Symbol, an element ID, preferably 219, for use by Philips, element IDs, preferably 128 and 129, for use by Agere and request the assignment of an element ID, preferably 221, for the purposes of permitting a preferred format for all future vendor-specific elements in which the vendor is identified by an IEEE issued OUI in the first 3 octets of the element body. While P802.11 is listing element IDs used for proprietary purposes in its registry of assigned numbers, it does not condone nor imply acceptance of such proprietary use. Further, P802.11 urges those using element IDs not assigned by P802.11 to abandon such usage and migrate to usage of element ID 221, as P802.11 reserves the right to assign all element IDs for its own standardization purposes.
 - 4.7.1.1.1. Moved Duncan Kitchin
 - 4.7.1.1.2. Second Harry Worstell.
 - 4.7.1.1.3. Vote: passes 74 : 4 : 10

4.7.2. Radio Regulatory Motions

- 4.7.2.1. Moved: To approve document 18-03-005r0-80218_Cmts_SPTF_Report.doc, (Comments on the FCC SPTF Report) for filing with the FCC, as an 802.18 document, and authorizing the Chair of 802.18 to do necessary editorial and formatting changes to make the document suitable for filing.
 - 4.7.2.1.1. Moved Carl Stephenson
 - 4.7.2.1.2. Unanimous Consent
- 4.7.2.2. Moved: To approve document 18-03-006r0-80218_Cmts_ET-02-380.doc, (Comments on the FCC Unlicensed Spectrum NOI) for filing with the FCC, as an 802.18 document, and authorizing the Chair of 802.18 to do necessary editorial and formatting changes to make the document suitable for filing.
 - 4.7.2.2.1. Moved Carl Stephenson
 - 4.7.2.2.2. Unanimous Consent

4.7.3. Reaffirmation Report and Motions

- 4.7.3.1. Report in document 03/121r0
- 4.7.3.2. 802.11 1999 (reaff. 2003) will include:
- 4.7.3.3. 802.11 1999 -802.11a 802.11b -802.11b corrigendum 1
- 4.7.3.4. 802.11d
- 4.7.3.5. The goal is to complete the work at the March 2003 REVCOM meeting

- 4.7.3.5.1. IEEE staff reports that rules of REVCOM require reaffirmation (or revision) of our IEEE 802.11 standard prior to approval of any further amendments to 802.11 (e.g., 802.11h, 802.11g, 802.11e, 802.11i, etc.)
- 4.7.3.6. Sponsor Ballot passed 82% return rate. 69:2:5 (97% yes).
- 4.7.3.7. Resolution Committee
 - 4.7.3.7.1. Responsibilities are:
 - 4.7.3.7.1.1. Reviewing comments and proposed responses for the original ballot and any necessary recirculation ballots
 - 4.7.3.7.1.2. Participation in teleconferences coordinated by the resolution committee chair
 - 4.7.3.7.1.3. Contacting sponsor ballot voters as needed
 - 4.7.3.7.1.4. Working with IEEE staff and the sponsor to complete the approval process
 - 4.7.3.7.2. Chair: Terry.Cole@amd.com
 - 4.7.3.7.3. Membership formed in December by volunteers:
 - 4.7.3.7.3.1. Stuart Kerry, Adrian Stephens, Srinu Kandala, Jon Rosdahl, Steve Palm
 - 4.7.3.7.4. Review of ballot comments – responses in database.
 - 4.7.3.7.5. Review of patent policy with respect to the 2003 affirmation:
 - 4.7.3.7.5.1. Companies are urged to review and comply with the patent policy of IEEE with respect to the 2003 reaffirmation of 802.11.
 - 4.7.3.7.5.2. An expert from IEEE SA Standards Board Bylaws – October 1999
 - 4.7.3.7.5.2.1. ... assurance shall be provided without coercion and prior to approval of the standard (or reaffirmation when a patent becomes known after initial approval of the standard).
 - 4.7.3.7.5.3. Members are requested to review and comply with the patent policy.
 - 4.7.3.7.6. One new document will replace five, available March 2003.
 - 4.7.3.7.6.1. ISO/IEC plans to use new document (first approval of 802.11b/d).
 - 4.7.3.7.6.2. New amendments can be approved by REVCOM without procedural hindrance related to reaffirmation/revision status until March 2005
 - 4.7.3.7.6.3. MIB text compiles and published electronically.
 - 4.7.3.7.6.4. SDL updated (goal: no better or worse) and published electronically.
 - 4.7.3.7.6.5. PICS made into an electronic form and published electronically.
 - 4.7.3.7.6.6. We are not getting all possible corrections. Some things cannot be done as “reaffirmation.” I’ve collected a list of things we should fix in coming 2 year period. Will be documented and put into archive.
- 4.7.3.8. Next Steps
 - 4.7.3.8.1. A three step program will keep us in good shape:
 - 4.7.3.8.1.1. Keep our eye on the ball. I urge those participating in the sponsor ballot recirculation to review comments and reaffirm 802.11 as a very valuable specification within the wireless world.
 - 4.7.3.8.1.2. Plan future amendments appropriately. All projects should be against the base document IEEE

802.11 1999 (reaff. 2003). The amendments going to Revcom need to be based on the reaffirmation standard.

4.7.3.8.1.3. The WG chair notes that this is very important for TG chairs to be sure their amendments are against this. The Editors of the Task Groups have to check this. The WG chair will also check this.

4.7.3.8.1.4. Get ready for spring 2005. Make plan in March for roll-up of each approved amendment ASAP, decide what to do about existing technical errors/reorganization. The maintenance PAR is the first step of this.

4.7.3.9. Move that the WG accept the resolutions as found in doc 03-117, request the WG Chair to request that the IEEE conduct a 10 day recirculation Sponsor Ballot, and that the WG Chair submit the Reaffirmation to be placed on the REVCOM March agenda before 02/07/03.

4.7.3.9.1. Moved Jon Rosdahl

4.7.3.9.2. Second Carl Stephenson

4.7.3.9.3. Discussion

4.7.3.9.3.1. All the comments have been resolved. We kept the issues on the errata, and what is being held for the maintenance PAR.

4.7.3.9.3.2. The WG Chair notes that the ExCom secretary, Bob O'Hara should be notified of these items, regarding the TGm PAR.

4.7.3.9.3.3. Is the draft reaffirmation available to the general membership? No, only the sponsor ballot members. It is in the IEEE areas.

4.7.3.9.4. Vote: Accepted by unanimous consent.

4.8. New Business

4.8.1. None

4.9. Closing Announcements

4.9.1. Next Meeting March 9-14th Hyatt Regency DFW Airport.

4.10. Adjourn at 11:10AM

Attendance list for the meeting held at **Marriott, Ft Lauderdale, FL**

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Tuesday, March 04, 2003

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IEEE P802.11
Wireless LANs

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

Fort Lauderdale, Florida, USA

Date: January 13 - 16, 2003

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1. Monday Morning, January 13, 2003

1.1. Opening

1.1.1. Call to order

1.1.1.1. John Fakatselis (JohnF) called the meeting to order at 3:30pm.

1.1.2. New Secretary

1.1.2.1. JohnF: Tim Godfrey has other groups to watch, so is no longer able to serve as secretary. I am nominating David Hunter as secretary.

1.1.2.2. Approved with no objections..

1.1.3. Review of the agenda

1.1.3.1. Tentative meeting schedule: 11-02-736r0-W-Tentative-Agenda-January-2003.xls

1.1.3.2. Review minutes from previous meeting

1.1.3.3. Call for papers.

1.1.3.4. Fixed Time Items are on the agenda.

1.1.4. Discussion on the agenda

1.1.4.1. Q: the last session today will begin at 7:00pm

1.1.4.2. JohnF: yes.

1.1.5. Approval of the agenda

1.1.5.1. The agenda is approved unanimously.

1.1.6. Discussion on the just completed letter ballot

1.1.6.1. JohnF reported that the preliminary results were that Letter Ballot 51 passed with approximately 1700 comments (1100

technical; 600 editorial). These comment rates were similar to those of previous ballots.

1.1.6.2. No comments or objections to this summary.

1.2. Review of 802.11 policies and rules

1.2.1. Straw Poll

1.2.1.1. How many new participants?

1.2.1.2. About 7

1.2.2. The chair reviews voting rules and the process

1.2.2.1. Votes are for voting members only.

1.2.2.2. Non-voters are allowed to participate in discussion, at the discretion of the chair. Non-voters cannot bring a motion.

1.2.2.3. Members are requested to not stall the process by unnecessary use of privileged motions.

1.2.3. Discussion

1.2.3.1. JohnF: During the last (November 2002) meeting there was a protest on this subject, so we need to review these issues up front.

1.2.3.2. Before a second to a motion is made, the chair will allow discussion pertaining only to amendments that allow the mover to change the motion (if the mover agrees). We believe this permits better progress than setting formal amendments, discussions, etc. on minor points. If you believe the chair has allowed discussion too long before seconding, bring this issue up as a point of order to have a second and to follow the normal motion/amendment process.

1.2.3.3. There were no further comments on Policies and Rules..

1.3. Approval of minutes

1.3.1. Are there any questions or issues with the minutes of the November 2002 meeting in Kauai.

1.3.1.1. None.

1.3.1.2. The minutes of November 2002 are approved with unanimous consent.

1.4. Procedures for addressing the LB51 comments

1.4.1. Discussion of procedures

1.4.1.1. Matthew Sherman (MatthewS): Do you intend to order the discussion by sections or by functionality?

1.4.1.2. JohnF: Have started with section because that is much easier to set up. The suggestion is to divide and conquer: divide up into ad-hoc groups working on separate sections.

- 1.4.1.3. *MatthewS: Need advice from the chair how to deal with comments that are across sections; what do you do with more global comments?*
- 1.4.1.4. *JohnF: Propose that initially we leave the cross-sectional comments on the side; but do report them in your first report.*
- 1.4.1.5. *Keith Amann (KeithA): We have attempted this approach in the past. It hasn't been that successful.*
- 1.4.1.6. *JohnF: Am open to better methods; this seems to be the best we've tried so far.*
- 1.4.1.7. *KeithA: Am cautious of this approach, but don't have a better alternative in mind.*
- 1.4.1.8. *JohnF: I believe we can take this by function after we reduce the number of comments that can be solved within a section.*

1.4.2. Discussion of Duncan Kitchin's return to Vice Chair

- 1.4.2.1. *JohnF: Since Duncan Kitchin (DuncanK) has no technical presentations or comments, I would like to invite him back to function as Vice Chair of TGe.*
- 1.4.2.2. *Mathilde Benveniste (MathildeB): I object to this procedure.*
- 1.4.2.3. *JohnF: I'd like to take a straw poll first and then I will rule accordingly.*
- 1.4.2.4. *MatthewS: Request discussion.*
- 1.4.2.5. *MathildeB: Was impressed that DuncanK stepped down from the chair because he had a bias at that time. But wonder what now indicates that that bias is gone.*
- 1.4.2.6. *DuncanK: I had a strong opinion on the issue of which large features are to be mandatory or optional. I submitted draft PICS on this. If there are comments on this issue, then I will step aside for those issues.*
- 1.4.2.7. *MathildeB: Given this information, I withdraw my objection.*
- 1.4.2.8. *JohnF: I ask that Duncan's statement be noted in the Minutes.*
- 1.4.2.9. *David Hunter (DavidH): So noted.*
- 1.4.2.10. *MatthewS: in the last few months I find that I have been arguing with the chair or vice chair. I ask that you try to remain sensitive to your biases.*
- 1.4.2.11. *JohnF: That is key; that is the way officers should manage this group*

1.4.3. Return to discussion of procedures

- 1.4.3.1. *DuncanK: A brief review indicated that many technical comments are really editorial; this is an ideal thing to give to the ad-hoc groups for review. Suggest we have ad-hoc groups and reserve major technical issues to the whole group. Believe that we need to start off with the whole group reviewing comments one-by-one and assigning what is needed to the ad-hoc groups. I think we want the non-controversial issues to go to the ad-hoc groups.*

Otherwise, we'd have to debate those [controversial issues] all over again in the general TGe group.

- 1.4.3.2. *Srini Kandala (SriniK): I don't believe the whole group can go through the 1700 comments. Need to form ad-hoc groups first and just assign them by section.*
- 1.4.3.3. *DuncanK: My review found that 1100 technical comments contains a large number of duplicates. We might not get through all of them this week, but we should be able to get a number [settled].*
- 1.4.3.4. *John Kowalski (JohnK): Believe that ad-hoc groups might think something is non-controversial the others think is controversial. What issues do people here think are especially controversial?*
- 1.4.3.5. *MatthewS: So we should have a lot of time to review what the ad-hoc groups do. Believe that the 4-hour rule is insufficient for this. We need a day for review.*
- 1.4.3.6. *JohnF: Quick recess so I can come up with a proposal – 10 minute recess.*
- 1.4.3.7. *KeithA: Would like to have a written proposal.*
- 1.4.3.8. *JohnF: How about a short recess of 15 minutes for a written proposal before the break?*
- 1.4.3.9. *No objections.*

1.4.4. After the recess

- 1.4.4.1. *Joint (JohnF, DuncanK, SriniK) Proposal:*
 Comment Resolution Process Outline
 Assign ad-hoc groups by topic
 - Each ad hoc review the comments and picks the appropriate [ones] for their group to address
 - Ad hoc groups address the comments starting from "easier" to controversial, and they notify the TGe of the list of controversial issues.
 Ad hoc groups will meet during regular sessions
 At least one session per day (preferably the last) will be a TG meeting to entertain motions from the ad hoc groups.

 Have identified the ad hoc groups:
 - Mandatory/optional EDCF/PCF
 - Group Ack
 - DLP
 - EDCF
 - Polled HCF operation
 - Everything else
- 1.4.4.2. *JohnF: I don't expect much progress in this [the "Everything Else"] group, as it's too general.*
- 1.4.4.3. *MathildeB: Request a Power Save group*
- 1.4.4.4. *JohnF: Add to the subject areas: "-- Power Save".*
- 1.4.4.5. *Sid Schrum (SidS): How are comments going to be sorted out?*

- 1.4.4.6. JohnF: *The thinking was that all groups are going to get all comments and then [choose]*
- 1.4.4.7. Amjad Soomro (AmjadS): *How determine whether [there are] overlaps?*
- 1.4.4.8. DuncankK: *The first step for each group should be to create an Excel spreadsheet with just a list comment numbers, then submit that to the chairs to do the detection of overlaps*
- 1.4.4.9. KeithA: *Alternative; rather than break out by subject matter, I believe it is more effective to address by clause. We're going to have to break up Clause 9 into subgroups.*
- 1.4.4.10. MatthewS: *Believe that we need to limit the number of simultaneously-meeting ad hoc groups. Too many is too hard to track and coordinate*
- 1.4.4.11. JohnF: *Agree, but don't see this as conflicting with what we're proposing to do.*
- 1.4.4.12. SrinikK: *Propose to have at most three ad hoc groups meeting simultaneously.*
- 1.4.4.13. MatthewS: *Sounds like a good compromise.*
- 1.4.4.14. JohnF: *Will conduct a straw poll and decision after lunch*

1.4.5. Recess for lunch

2. Monday Afternoon, January 13, 2003

2.1. Opening

2.1.1. Call to order

- 2.1.1.1. JohnF *called the meeting to order at 1:00pm*

2.2. Procedures for addressing the LB51 comments

2.2.1. Continuing discussion of procedures

- 2.2.1.1. JohnF: *Review of the proposal for this week's procedures. I ask for proponents on each side to elaborate their positions; then will decide according to a straw poll*
- 2.2.1.2. DuncankK: *In favor of splitting ad hoc groups by topics. Believe it will be easier than by clause number because a number of comments are about topics, and cross multiple clauses.*
- 2.2.1.3. KeithA: *We have tried topics before and it turned into a nightmare; groups were overlapping; ignoring some comments; control was a problem. Clause-based approach has worked reasonably well in other groups. And you don't get into the problem of who covers what.*
- 2.2.1.4. JohnF: *Straw poll: by topic / by clause / non-participating in this poll.*
- 2.2.1.5. Vote: *2 / 15 /15.*
- 2.2.1.6. JohnF: *So it is going to be by clause. So now we have a new version of the procedures:*

Comment Resolution Process Outline

Assign ad-hoc groups by clause

- Ad hoc groups address the comments starting from “easier” to controversial, and they notify the TGe of the list of controversial issues
- Ad hoc groups, at their discretion, assign the 4-hour rule or longer to groups of comments.
- Ad hoc groups will meet only during regular sessions.
- At least one session per day (preferably the last) will be a TG meeting to entertain motions from the ad hoc groups.

Have identified the ad hoc groups:

- Mandatory/optional EDCF/PCF
- Group Ack
- DLP
- EDCF
- Polled HCF operation
- Power save
- Everything else

2.2.1.7. *MatthewS: In other groups, ad hoc groups present their resolutions to the individual comments to their TG*

2.2.1.8. *KeithA: Can still group the comments, as long as they are inter-related.*

2.2.1.9. *MatthewS: Suggest adding the wording to the Process Outline:*

-- Each set of identical comments should be presented with its resolution to the TG.

2.2.1.10. *JohnF: Is there any objection to this process?*

2.2.1.11. *No objections.*

2.2.1.12. *JohnF: No objections, so this process is adopted.*

2.2.1.13. *MatthewS: Need also to describe what “solution” really means.*

2.2.1.14. *JohnF: The Letter Ballot actually passed, but we are obliged to address each and every comment. Need to accept, reject or propose something in between – hopefully without causing more comments.*

2.2.1.15. *MatthewS: Add to this that if reject a comment, then it is best to give some sort of rationale, else it will come back again*

2.2.1.16. *DuncanK: We are required to give a rationale for each rejection.*

2.2.1.17. *JohnF: We try to have over 90 percent approval, so presenting a rationale is very important.*

2.2.1.18. *KeithA: Suggest the following division:*

- 7
- 9.10.1
- 9.11

- 9.10.2, excluding 9.10.2.4.2
- 9.10.2.4.2 and Annex A, with explicit direction from the TG (direction from the TG in advance)
- All remaining classes

We need to cover controversial topics in the TG as a whole. Also need the decision about 9.10.2.4.2 to be done in the TG and then assigned to an ad hoc group to craft the words.

2.2.1.19. JohnK: A footnote is that the ad hoc groups do not have to worry about the editorial comments. Would like the TG meeting on 9.10.2.4.2 to be as late in the week as possible, so that we can get more done this week.

2.2.1.20. KeithA: Fine

2.2.1.21. MatthewS: How about limiting to 3 groups at a time, with each new group starting up after on of the earlier ones ends?

2.2.1.22. JohnK: Happy with that process, as long as 9.10.2.4.2 is last.

2.2.1.23. JohnF: Start with which three?

2.2.1.24. MatthewS: Can Srinik partition these into 200-300 so that accomplish the same things in the ad hoc groups?

2.2.1.25. JohnF: I want reports form the ad hoc groups each day, jus so that stay on top of it

2.2.1.26. Srinik: Start with 9.10.1 and 9.11; 7 will take longer. I volunteer to head 7.

2.2.1.27. DuncanK: Volunteer to take 9.10.1.

2.2.1.28. SidS: Volunteer to take 9.11.

2.3. Call for papers

2.3.1.1. JohnF: Call for papers

2.3.1.2. Srinik: 03/019: TS activation

2.3.1.3. 03/020: Service Period definition

2.3.1.4. Matthew Sherman (for Joe Houle): 03/001: Service Provider

2.3.1.5. Javier del Prado (JavierP): 03/041: EDCF views and suggestions

2.3.1.6. Liwen Wu (LiwenW): 02/678r1: Admission Control Signaling

2.3.1.7. MathildeB: Unknown topic (don't know which of several topics yet)

2.3.1.8. SidS: QBSS downlink broadcast / multicast data frame

2.3.1.9. Carlos Rios (CarlosR): 03/049: Proposed DLP modification

2.4. Scheduling of papers

2.4.1. Initial discussion

2.4.1.1. JohnF: [This amounts to] 9 papers; which are ready for presentation today?

2.4.1.2. CarlosR: 03/049

- 2.4.1.3. *SriniK: Will present 03/019 and 03/020 [first] at the ad hoc group*
- 2.4.1.4. *JohnF: Which other papers will not be ready tomorrow at 10:30am?*
- 2.4.1.5. *MatthewS: 03/001 will be after 10:30am tomorrow.*
- 2.4.1.6. *JohnF: Will squeeze in as many papers as we can tomorrow. Does anyone have a motion with their paper?*
- 2.4.1.7. *CarlosR: Haven't submitted it yet, but will have a motion.*
- 2.4.1.8. *JohnF: Need to that hat motion as a resolution of one of the comments, since this session of TGe is only for comment resolution.*
- 2.4.1.9. *CarlosR: It addresses one of my comments.*

2.5. Letter Ballot review

2.5.1. Preliminary ballot statistics

- 2.5.1.1. *JohnF: A repeat of the unofficial letter ballot results: Return of 93 percent, so ballot is [complete]. Approval of 83 percent, so ballot is approved. Only 9 percent abstaining (less than 25 percent), so it is a valid ballot. 305 total votes: 231 Yes; 46 No; 27 Abstain. There has been an objection to Abstains that do not list lack of technical expertise, so that number might change.*
- 2.5.1.2. *SriniK: 1798 comments from 74 commentators.*
- 2.5.1.3. *JohnK: Haven't seen [??]*
- 2.5.1.4. *JohnF: It's there in the rules*

2.5.2. Summary

- 2.5.2.1. *DuncanK: We should congratulate ourselves that we have a [working draft]. It is very obvious that this draft is much, much cleaner ant that made the draft much easier to pass. So want to thank Srini for all of his hard work on the draft.*
- 2.5.2.2. *Applause from whole TGe group.*

2.6. Presentation of Papers

2.6.1. Documents 03/049, 03/051: Proposed Modification to 802.11e-D4.0 Direct Link Protocol, Carlos Rios

- 2.6.1.1. *CarlosR: This is a slight modification of the November presentation, but motion was not made at that time. Flaws of the current draft:*
 - 2.6.1.1.1. *DLP functionality should not be limited to QSTAs*
 - 2.6.1.1.2. *Essentially security elements are not incorporated*
 - 2.6.1.1.3. *DLP-Probe functionality can be provided with existing 802.11-1999 frames*

- 2.6.1.2. *Adrian Stephens (AdrianS): Question doing this security in the MAC while TGi is doing their security in Data [link].*
- 2.6.1.3. *CarlosR: Believe that this is a better mechanism.*
- 2.6.1.4. *AdrianS: Don't want to fail the authorization just because of link conditions.*
- 2.6.1.5. *CarlosR: I see this as an implementation issue, how one can downscale automatic rate adjustment.*
- 2.6.1.6. *DuncanK: Has this been presented to TGi? Would like to know what they say.*
- 2.6.1.7. *CarlosR: Can try to propose it to them.*
- 2.6.1.8. *AmjadS: Is the authentication beyond the basic procedure?*
- 2.6.1.9. *CarlosR: Am not proposing anything beyond what TGi is proposing*
- 2.6.1.10. *AmjadS: Since this depends on TGi, then need to coordinate with them.*
- 2.6.1.11. *CarlosR: This also will work with legacy shared key authentication.*
- 2.6.1.12. *AmjadS: So this is set up to work with various authentication methods?*
- 2.6.1.13. *CarlosR: Exactly; this allows several different ways of authentication.*
- 2.6.1.14. *MatthewS: Have you looked at PICS to see if not conflicting with other bits?*
- 2.6.1.15. *CarlosR: Not yet.*
- 2.6.1.16. *MatthewS: Need to do that; think you're creating a subset QoS facility that can be activated independently of the other QoS facilities.*
- 2.6.1.17. *CarlosR: Don't see why DLP is QoS-specific. There is no reason [for it to be].*
- 2.6.1.18. *MatthewS: Believe that unless the other equipment [?]*
- 2.6.1.19. *Martin Lefkowitz (MartyL): If the policy of the AP is just AES, then doesn't need to keep TKIP information.*
- 2.6.1.20. *CarlosR: But AP shouldn't throw that information away. Whether STAs talk TKIP to each other is a policy choice. But the AP can't prevent STAs from going into an IBSS with each other.*
- 2.6.1.21. *MartyL: Can't be both associated and in an IBSS at the same time.*
- 2.6.1.22. *CarlosR: Then they just disassociated and do an IBSS. There are policy implementation issues here.*
- 2.6.1.23. *Georg Dickman (GeorgD): You replace the DLP probe with authentication, but what if you don't care about security?*
- 2.6.1.24. *CarlosR: You only do all this if you care about authentication; so STAs end up doing authentication anyway.*

2.6.2. End of presentations in this period

- 2.6.2.1. *JohnF: No other papers are ready for presentation, so will recess the TG activities on behalf of the ad hoc groups until the*

3:30pm session. Then, unless there are any special TGe proposal, will recess as again for ad hoc work.

2.7. Recess

2.7.1.1. JohnF recessed the meeting for ad hoc group work at 2:40pm

3. Monday Afternoon, January 13, 2003

3.1. Opening

3.1.1. Call to order

3.1.1.1. JohnF called the meeting to order at 3:30pm

3.2. Ad hoc groups

3.2.1.1. JohnF: If there are no special motions, we would like to recess for more ad hoc work.

3.2.1.2. No objections.

3.3. Recess

3.3.1.1. JohnF recessed the meeting for ad hoc group work at 3:32pm

4. Monday Evening, January 13, 2003

4.1. Opening

4.1.1. Call to order

4.1.1.1. JohnF called the meeting to order at 7:00pm

4.2. Ad hoc group reports

4.2.1. Review of ad hoc group progress

4.2.1.1. JohnF: What do ad hoc groups have to report?

4.2.1.2. SidS: 47 comments on 9.11; have solved 21 so far.

4.2.1.3. SriniK: 517 comments; resolved 30 so far.

4.2.1.4. DuncanK: 157 comments; 3 more were for 9.10, but we determined they should be covered by this group. Have gone through 37; most resolved. 11 are identified as controversial (5 unique topics) to go back to the TG. A couple of others we need to think about. Ones we classified as editorial we made suggestions as to the resolution.

4.3. Closing

4.3.1. Recess

- 4.3.1.1. *JohnF recessed the meeting for ad hoc group work at 7:16pm.*

5. Tuesday Morning, January 14, 2003

5.1. Opening

5.1.1. Call to order

- 5.1.1.1. *JohnF called the meeting to order at 8:00pm*

5.1.2. Agenda review

- 5.1.2.1. *JohnF: We have been approved to hold an interim TGe meeting in February, and have received some offers to host the meeting.*

5.2. Ad hoc group reports

5.2.1. Section 9.10.1 Group

- 5.2.1.1. *DuncanK: This group is covering 157 comments, of which 3 are debatable. The group is dividing the comments into the categories:*
- 5.2.1.1.1. *Controversial (must be debated by TGe as a whole)*
 - 5.2.1.1.2. *Needs more work (we will get back to these)*
 - 5.2.1.1.3. *Will be broken out separately in the report (not unanimous opinion in the group)*
 - 5.2.1.1.4. *Referred to Group Ack group*

5.2.2. Section 7 Group

- 5.2.2.1. *SriniK: 2 so far were judged controversial and 3 belong to other groups*
- 5.2.2.2. *SriniK: The frame formats topic has a lot of comments, so will take a lot of time.*

5.3. Recess

- 5.3.1.1. *JohnF recessed the meeting for ad hoc group work at 8:23am*

5.4. Opening

5.4.1. Call to Order

- 5.4.1.1. *JohnF called the meeting to order at 10:30am.*

5.5. Presentation of Papers

5.5.1. Document 03/001r0, "A Service Provider View of QoS Needs for Hot Spot and Public Venues", Joe Houle

5.5.1.1. JoeH: One goal: wireless access within a 5 minute walk of anyone in the 50 largest metropolitan areas, so we will be deploying 20,000 APs in 2004

5.5.1.2. JoeH: Partial Conclusions

5.5.1.2.1. Profitability doesn't come with data-only service

5.5.1.2.2. Need central control to live up to a needed QoS

5.5.1.2.3. Need across-vendor, consistent:

5.5.1.2.3.1. Authentication

5.5.1.2.3.2. Security (end-to-end IPsec is viable, but also need security for non-IPsec STAs)

5.5.1.2.3.3. Access control that includes QoS requirements

5.5.1.2.3.4. Manageability (must be carrier-class manageability)

5.5.1.2.3.5. QoS

5.5.1.2.4. 802.11 defines the edge of the services that Cometa provides.

5.5.1.3. Q: What do you mean by "substantial loading"?

5.5.1.4. JoeH: 2003: 10-20 percent of bandwidth capacity;
2004+: 50 percent of bandwidth capability

5.5.1.5. Q: The bulled "parameterized QoS simplifies interference" is opposite Cisco's approach, which is based on "prioritized QoS"

5.5.1.6. JoeH: If prioritized is needed, then the simplified interface must include bandwidth allocations.

5.5.1.7. Q: Some cities are providing their own WiFi networks, how can you make money off of this?

5.5.1.8. JoeH: Cometa needs to differentiate itself from the free stuff – things like QoS, business service that supports IPsec from end to end, are differentiators.

5.5.1.9. Q: How differentiate while using standard APs?

5.5.1.10. JoeH: We need voice service. Compare to best effort on cable versus Docsis standards that perform time critical services.

5.5.2. Document 02/678r1r0, "Uniform 802.11e Admissions Control Signaling for HCF and EDCF", Bob Meier and Mark Bilstad

5.5.2.1. MarkB: This is the continuation of a presentation in the November meeting

5.5.2.2. MarkB: Think TSPEC and admission control signaling are good things to have; explicit admissions control allows you to use policy. So the changes needed are:

5.5.2.2.1. TSPEC access method bits

5.5.2.2.2. New TSPEC status code

5.5.2.2.3. Prohibit EDCF access for STAs with admitted TSPECs

5.5.2.2.4. Add 8 new QoS parameter set flags

- 5.5.2.3. Q: What happens if you don't know what the QoS parameters are, to set up the TSPEC – especially if at another AP?
- 5.5.2.4. Bob Meier (BobM): You can turn this on for voice. This is just to provide the hooks to create policy-based admission control. It can be used on a per-user priority basis.
- 5.5.2.5. Q: Does this require TSPEC support in the STA?
- 5.5.2.6. MarkB: No, unless that STA needs to use it.
- 5.5.2.7. Q: An alternative would be to act on the distributed admission control parameter.
- 5.5.2.8. MarkB: See the next few slides (“Other Considerations” onward). There is a requirement for roaming quickly and choosing the best AP. This opens the door for flow-specific access parameters, so new flow specific access parameters would be needed.
- 5.5.2.9. Q: Worried about complexity creep; polling looks so much simpler.
- 5.5.2.10. MarkB: Am concerned also, so need to do a straw poll.
- 5.5.2.11. Q: I'm in favor of your proposal because it supports EDCF in terms of direct link protocols.
- 5.5.2.12. Q: Need three separate straw polls. Am in favor of the second, only.
- 5.5.2.13. Q: If a STA has a preferred access method, is there a way to signal that?
- 5.5.2.14. MarkB: As its drawn up here, you have to request twice.
- 5.5.2.15. Q: TSPECs have been optional so far because they can be complex. If you're going to allow the AP to deny access for any device that doesn't support TSPECs, then need to have general support for TSPECs.
- 5.5.2.16. Q: I believe it is a policy decision to decide whether to use TSPECs for voice.
- 5.5.2.17. Q: You don't require TSPECs, do you?
- 5.5.2.18. MarkB: No.

5.5.3. Document 03/051r0, “Proposed Modifications to 802.11e-D4.0 Group ACK”, Carlos Rios

- 5.5.3.1. CarlosR: This is about Section 9.11. This version includes many of the comments that others made (see the LB51 Merged Comment List about Section 9.11). The point is that we do not need to be a QSTA to be able to make use of Group Asks.
- 5.5.3.2. No questions or comments.

5.5.4. Update on the Interim Meeting

- 5.5.4.1. JohnF: So far Sharp and Intel in Portland, Oregon have offered to host this meeting in Portland in the last week of February. We're still looking for more companies that would be interested in hosting the meeting.

5.5.5. Recess

- 5.5.5.1. *JohnF recessed meeting at 12:00pm until the next TGe session.*

6. Wednesday Afternoon, January 15, 2003**6.1. Opening****6.1.1. Call to order**

- 6.1.1.1. *JohnF called the meeting to order at 1:05pm*
6.1.1.2. *JohnF: Agenda updates*
6.1.1.2.1. *Two new papers are available*
6.1.1.2.2. *These papers will be scheduled for this session*

6.1.2. Discussion about Ad Hoc TGe meeting

- 6.1.2.1. *SidS: Can be meeting be at the beginning of February?*
6.1.2.2. *JohnF: That would not give us enough time for a 30-day notice*

6.1.3. Straw poll

- 6.1.3.1. *JohnF: Ad hoc participation: how many plan to attend*
6.1.3.2. *Vote: 10 would; 11 definitely would not; 15 undecided; 3 might attend by phone, if that were available*

6.1.4. New agenda item

- 6.1.4.1. *JohnF: On the last TGe session (Thursday evening) there will be a vote on the Ad Hoc meeting*

6.2. Paper presentations**6.2.1. Document 03/102r0, "QBSS Downlink Broadcast and Multicast Data Frame Handling", Sid Schrum**

- 6.2.1.1. *Wim Diepstraten (WD): Want to add the issue that if you have power save stations, then would not be required to wait*
6.2.1.2. *SidS: Agree. If DTIM is a large interval, then might be unacceptable to wait.*
6.2.1.3. *SriniK: How can you limit the number of broadcasts?*
6.2.1.4. *SidS: Would let them accumulate, then discard on the basis of their lifetimes expiring. Need to change the standard to allow this.*
6.2.1.5. *JohnK: Isn't this a problem for legacy?*
6.2.1.6. *SidS: Can throw away broadcast packets.*
6.2.1.7. *JohnK: If admitted a stream, then have to accommodate this.*
6.2.1.8. *SidS: Have to account for it in your scheduling.*
6.2.1.9. *MartyL: If power save is allowed, don't you definitely have to?*
6.2.1.10. *SidS: Can require DTIMs to be small or use some other means.*

- 6.2.1.11. *MartyL: Don't need QoS if you are going to wait for the DTIM.*
- 6.2.1.12. *SidS: Disagree. Could push out all the traffic if you say you admit broadcast. High priority broadcast/multicast can be supported if you limit the DTIMs. On the other hand, if you blindly follow the implications of the spec, you can have a broadcast storm problem – but that is different from this paper's point.*
- 6.2.1.13. *DuncanK: Have downlink problems.*
- 6.2.1.14. *SidS: May also use TID to give preferential treatment to frames (on the receive side). If have to throw away frames because of lack of resources, could save the high priority.*
- 6.2.1.15. *DuncanK: Since you don't have duplicate detection, how assign sequence numbers? Does it depend on which priority you signal in the frame? SO then do we need a rule that says you can't abandon a pending unicast frame in order to set a broadcast? The current form is that you have a completely separate queue.*
- 6.2.1.16. *SidS: It comes out of the same queue as broadcast/multicast. There's no change in sequence numbering, just say it's for broadcast.*
- 6.2.1.17. *SriniK: You're not going to do any duplicate detection, so why need this?*
- 6.2.1.18. *SidS: You would lose information in the receiver. The proposal is to make sure that you know when this is permitted, and when it is wise to use it, rather than send these all the time.*
- 6.2.1.19. *SriniK: And with ToDS set to zero?*
- 6.2.1.20. *SidS: Don't know right now; certainly don't want to invent this on the fly.*
- 6.2.1.21. *GeorgD: Comment on the second proposal (non-best effort may use QoS data frame). We need to have a rule for this usage. If a STA sends multicast with set to 1, then STA would think the AP wants to use multicast.*
- 6.2.1.22. *SidS: If took the case of QSTA sending broadcast to the AP with QoS data format, are you saying it should still be sent out that way?*
- 6.2.1.23. *GeorgD: This question is about multicast.*
- 6.2.1.24. *SidS: So you're saying the originator decides.*
- 6.2.1.25. *Javier del Prado (JavierP): The third proposal (non-best effort may lose QoS) has other problems associated with QoS frame usage.*
- 6.2.1.26. *SidS: This is a limited proposal. It is not meant to solve all the other problems with these frames.*
- 6.2.1.27. *SriniK: There does seem to be some demand for what you're proposing.*
- 6.2.1.28. *DuncanK: How do you select which bit rate you're going to use?*
- 6.2.1.29. *SidS: Just sticking with the current methods. I'm not trying to change those right now.*

6.2.2. Document 03/089r0, "Multicast Queuing", Georg Dickman, Javier del Prado

6.2.2.1. *No questions or comments.*

6.2.3. Straw Polls

6.2.3.1. *MarkB: I request a straw poll on yesterday's presentation. The summary from 02/678r2 of proposed changes is:*

6.2.3.1.1. *Add access method bits to TSinfo field of TSPEC IE*

6.2.3.1.2. *Add new TSPEC status code (to say whether or not a particular type of success is allowed for that AC)*

6.2.3.1.3. *Delete text that prohibits EDCF access for stations with admitted TSPECs*

6.2.3.2. *MarkB: Straw poll: is this an acceptable proposal?*

6.2.3.3. *GeorgD: Do you want to have interaction with distributed admission control?*

6.2.3.4. *MarkB: They actually can coexist; request a lower budget than you need.*

6.2.3.5. *BobM: How about asking whether people are basically for this kind of usage, as opposed to having problems with the details?*

6.2.3.6. *MarkB: Straw polls (non-voting members also can vote):*

6.2.3.6.1. *Do you support the use of TSPECs to admit flows of either access method? Results: Yes 16; No 4; Abstain 10*

6.2.3.6.2. *Do you support the specific changes in this proposal (02/687r2)? Results: Yes 13; No 7; Abstain 8*

6.2.4. Discussion on ad hoc meetings

6.2.4.1. *SriniK: Can we meet in ad hoc groups when TGe does not have a session?*

6.2.4.2. *JohnF: No, we don't have enough time to make a formal notice.*

6.2.4.3. *KeithA: Are we going to be caught by the 30 day announcement rule on the Ad Hoc TGe meeting?*

6.2.4.4. *JohnF: We already have stated that it will occur in the last week of February, so that should not be a problem.*

6.2.5. Recess

6.2.5.1. *JohnF recessed the meeting for ad hoc group work at 2:20pm..*

6.2.5.2.

6.3. Opening**6.3.1. Call to order**

6.3.1.1. *JohnF called the meeting to order at 3:34pm*

6.3.2. Ad hoc group reports

6.3.2.1. *None of the groups have new motions. Two are in the middle of comment resolution processing*

6.3.2.2. *SidS: the initial group of Section 9.11 comments has been completed.*

6.3.2.3. *Request to put the 9.10.1 comment resolutions on the server*

6.3.2.4. *DuncanK: Will do.*

6.3.3. Recess

6.3.3.1. *JohnF recessed the meeting for ad hoc group work at 3:38pm*

7. Thursday Morning, January 16, 2003

7.1. Opening

7.1.1. Call to order

7.1.1.1. *JohnF called the meeting to order at 8:07am*

7.1.2. Agenda updates

7.1.2.1. *JohnF: there will be four sessions today, 8, 10:30, 3:30, 7:00*

7.1.2.2. *JohnF: the current plan is to post the comment resolutions by 3:30pm so that we can meet the 4 hour rule for 7:30pm voting*

7.1.3. Ad Hoc TGe Meeting

7.1.3.1. *JohnF: We need to decide on the ad hoc TGe meeting time and date. There currently are three proposals:*

7.1.3.1.1. *Portland, Oregon*

7.1.3.1.2. *Briarcliff Manor, New York*

7.1.3.1.3. *Boulder, Colorado*

7.1.4. Ad hoc group reports

7.1.4.1. *SriniK: 03/065r0 was submitted yesterday; will post the latest version of 03/103 by Noon today.*

7.1.4.2. *SriniK: will post 03/064 by Noon so that can work at it after 4:00pm*

7.1.4.3. *SriniK: DuncanK posted 03/066 already.*

7.1.4.4. *JohnF: Would like to group the comments by blocks so that a number of them can be taken together. Then we can bring the exceptions up separately.*

7.1.4.5. *SriniK: The comment resolution document numbers are 063, 064, 065 and 103*

7.2. Recess

7.2.1.1. *JohnF recessed the meeting for ad hoc group work at 8:21am*

7.3. Opening

7.3.1. Call to order

7.3.1.1. *JohnF called the meeting to order at 10:37am*

7.3.2. Agenda update

7.3.2.1. JohnF: We have an agenda item: between 3:30pm and 5:30pm we will entertain motions from the ad hoc groups and approve comment resolutions in blocks. If there are exceptions within the blocks, the blocks may be put aside so that we can move to other blocks of comments.

7.3.2.2. JohnF: we also will decide in 7:00pm – 7:30pm about the time and location of any Ad Hoc TGe meeting.

7.3.3. Requests by ad hoc groups

7.3.3.1. SidS: Revision 3 of 03/065 has been posted on the server.

7.3.3.2. SriniK: Will post 03/063 revision 1 by Noon today.

7.3.3.3. JohnF: Duncank has informed me that he will be presenting the solutions that are approved by his ad hoc group.

7.3.3.4. MathildeB: Document 03/107, by MathildeB, BobM and KeithA, has been posted. This deals with enhancements of the APSD mechanism. I'd appreciate offline feedback and request time to present that today.

7.3.3.5. JohnF: Does this address specific comments?

7.3.3.6. MathildeB: Yes it does.

7.3.3.7. JohnF: Then please list in the presentation the specific comments that it addresses.

7.3.3.8. GH: Please post the document numbers of the comment resolution documents.

7.3.3.9. SriniK: These are now displayed on the screen:

7.3.3.9.1. 063r1 -- Clause 7 ad hoc group

7.3.3.9.2. 064r2 -- Clause 9.10.1

7.3.3.9.3. 065r3 -- Clause 9.11

7.3.3.9.4. 103r1 -- Remaining Group Ack

7.3.3.10. Duncank: Note that 064r2 contains a specific, additional color code for each comment's disposition.

7.3.3.11. SriniK: 063r1 uses a different color code, but to the same purpose.

7.3.3.12. JohnF recessed the meeting for ad hoc group work at 10:45am.

8. Thursday Afternoon, January 16, 2003

8.1. Opening**8.1.1. Call to order**

8.1.1.1. JohnF called the meeting to order at 3:32pm

8.1.2. Agenda update

8.1.2.1. JohnF: this is the last session before the special orders; technical motions will be taken up now.

8.1.2.2. JohnF: This is the item "Ad hoc group presentations to review proposals and have motions"

8.1.3. Section 9.10.1, first motion

- 8.1.3.1. *DuncanK: 03/064r2: the first block of comments is the set of comments marked in white and have the status "AR", down to line 84 (comment 1318).*
- 8.1.3.2. *DuncanK then described each comment and proposed resolution in this block.*
- 8.1.3.3. *AmjadS: There are several more comments marked "AR" in this document.*
- 8.1.3.4. *DuncanK: The remaining three comments (117, 118 and 126) are covered in document 03/064r2.*
- 8.1.3.5. *Motion: Accept the comment resolutions marked "AR" as proposed by the subclause 9.10.1 ad hoc resolution group in document 03/064r2. (Kitchin/Kowalski)*
- 8.1.3.6. *Charles Wright: You changed some of the "AR"s to "Open"s during this discussion.*
- 8.1.3.7. *DuncanK: we reviewed the three cases and showed that these only were resolutions that were proposed to be returned to the originator for clarification.*
- 8.1.3.8. *Vote (technical): 24-0-1 Passed.*

8.1.4. Section 9.10.1, second motion

- 8.1.4.1. *DuncanK: 03/064r2 second block of comments: comments marked in purple (resolutions that received a majority vote, but not universal vote, in the ad hoc group)*
- 8.1.4.2. *DuncanK described each comment and proposed resolution in this block*
- 8.1.4.3. *Motion: Accept the resolutions to comments 228 and 750 as proposed by the subclause 9.10.1 ad hoc resolution group in document 03/064r2. (Kitchin/Kuehnel)*
- 8.1.4.4. *No discussion.*
- 8.1.4.5. *Vote (technical): 27-0-0 Passed*

8.1.5. Other groups

- 8.1.5.1. *MatthewS: question: thought that our process was to be able to take up all the non-controversial comments from all of the groups first.*
- 8.1.5.2. *JohnF: Agree, so we will move on to the other groups and their non-controversial comment resolutions.*

8.1.6. Section 9.11, first motion

- 8.1.6.1. *SidS: 03/065r3 document is*
 - 8.1.6.1.1. *11-03-065r3-E-LB51_Clause_9_11_Comments.xls.*
- 8.1.6.2. *SidS: some side comments:*
 - 8.1.6.2.1. *Frequently the group reclassified a comment as editorial without suggestions. These comments are to be left to the editor.*
 - 8.1.6.2.2. *There are 47 comments total in this group.*
 - 8.1.6.2.3. *The philosophy of the group included following the guidelines of the overall 83 percent vote in LB51, and not*

- distinguishing between universal and supermajority votes in the group.
- 8.1.6.3. SidS described each comment and proposed resolution in this block.
- 8.1.6.4. SriniK: Request direction from the group as to whether to use "Group Ack" or "Burst Ack".
- 8.1.6.5. SidS: the group reclassified this as editorial, but didn't make a choice.
- 8.1.6.6. DuncanK: suggest taking a straw poll:
- 8.1.6.6.1. Group Ack, Burst Ack, Multiple Ack, Selective Ack, Requested Ack, Windowed Ack, Block Ack
- 8.1.6.6.2. Voting members only, but can vote for more than one
- 8.1.6.6.3. Straw poll results: Group 6, Burst 5, Multiple 3, Selective 1, Requested 1, Windowed 1, Block 7
- 8.1.6.7. DuncanK: conclusion seems to be to change to "Block Ack"
- 8.1.6.8. SidS continued the description of each comment and proposed resolution in this block.
- 8.1.6.9. SriniK: Need to exclude comment 344 from this motion, as it is actually about Immediate Group Acks.
- 8.1.6.10. SidS: Agree; will add that exclusion to the motion.
- 8.1.6.11. Motion: Accept the letter ballot comment resolutions found in document 03/065r3, and instruct the editor to incorporate in the next TGe draft standard the changes described in the recommended resolutions from the same document, excluding letter ballot comment with IDs of 58, 342, 344, 346 and 910. (Scrum/Kandala)
- 8.1.6.12. Toru Ueda (ToruU): comment 1138; I think this is sequential and so prefer to exclude this from the list.
- 8.1.6.13. SidS: the current rules have been changed and no decision has been made.
- 8.1.6.14. SriniK: Agree, and that's why this should be excluded.
- 8.1.6.15. SidS: If we think the disposition of a resolution might change, depending on other resolutions, do we need to exclude those cases?
- 8.1.6.16. JohnF: We always reserve the right to make changes later. We can readdress those later.
- 8.1.6.17. SidS: Then I'll make a note in our group that this might be changed and will create a later r4 of this document.
- 8.1.6.18. SidS: This motion would resolve 42 of the 45 comments.
- 8.1.6.19. Vote (Technical): 20-0-2 Passed.
- 8.1.7. Section 7, first motion**
- 8.1.7.1. SriniK: The document is 11-03-063r1-e-LB51_Comment_Resolution_Clause_7.xls.
- 8.1.7.2. SriniK: Group 7 covered about 100 of the 517 comments, and thought that we had resolved about 94 of them. But apparently there will be some exclusions from these.

8.1.7.3. *SriniK described each comment and proposed resolution in this block that are marked with a resolution in this document, up to comment number 15 (as numbered in this document).*

8.1.7.4. *JohnF: Is there any objection to simply approving the comment resolutions in this document, since the document was posted on the server 7 hours ago?*

8.1.7.5. *SriniK: I object. We really need to review some of these resolutions.*

8.1.7.6. *SidS: Is there any reason we can't go to 9:30pm with this?*

8.1.7.7. *JohnF: We can do that, but we do have to account for the special orders.*

8.1.8. **Recess**

8.1.8.1. *JohnF recessed the meeting until the 7:00pm session at 5:35pm.*

9. **Thursday Evening, January 16, 2003**

9.1. **Opening**

9.1.1. **Call to order**

9.1.1.1. *JohnF called the meeting to order at 7:01pm*

9.1.2. **Agenda**

9.1.2.1. *JohnF: described the current agenda:'*

9.1.2.1.1. *Old business – Continue with the Clause 7 comment resolution group.*

9.1.2.1.2. *New business – Decision on the Ad Hoc TGe meeting*

9.1.2.1.3. *7:30pm – special orders*

9.1.2.2. *JohnF: It appears now that we will not have a new draft available, so I plan to request at 7:30pm a change to continue with the comment resolution process. If anyone has a problem with this procedure, please see me, as I would like to have a unanimous agreement at that time on the changed agenda.*

9.1.3. **Continuation of Section 7 resolutions**

9.1.3.1. *SriniK: In the interest of time I've market the items that are controversial and will treat the others presently. Before I make a motion, I would like feedback whether people have had enough time to review 03/063r1 without further verbal discussion.*

9.1.3.2. *AmjadS: What are the differences between the r1 and r2 versions of this document?*

9.1.3.3. *SriniK described the controversial items and proposed resolutions in this document, including items 103 and 109.*

9.1.3.4. *SriniK: This resolves 83 comments.*

9.1.3.5. *Motion to accept the recommended dispositions for Letter Ballot 51 comments with status marked as "D" in document 03/063r2. (Kandala/Kowalski).*

9.1.3.6. *No further discussion.*

9.1.3.7. *Vote (technical): 15-0-5. Passed.*

9.1.4. New Business: Ad Hoc TGe meeting

9.1.4.1. *JohnF: The only agenda item left is the existence, location and time of the Ad Hoc TGe meeting. Voting members: is there any objection to holding this meeting?*

9.1.4.2. *No objections.*

9.1.4.3. *JohnF: The three possibilities are all in the timeframe of February 24-28, 2003:*

9.1.4.3.1. *Boulder, Colorado*

9.1.4.3.2. *Portland, Oregon*

9.1.4.3.3. *Briarcliff Manor, New York*

9.1.4.4. *JohnF: This vote will be by voting members only, though you may vote for more than one. If there is no clear majority, then I will ask the general group whether we can get unanimous consent on that; if not that, then a majority on the leader. If no majority on that, then will ask the same of the next highest one.*

9.1.4.5. *KeithA: Is the plan to meet for the entire week?*

9.1.4.6. *JohnF: That can be adjusted.*

9.1.4.7. *Vote: Portland 12, New York 8; Boulder 4.*

9.1.4.8. *JohnF: are there any objections to holding the meeting in Portland? I see three objections.*

9.1.4.9. *JohnF: Move to arrange an Ad Hoc meeting of the TGe in Portland, Oregon during the last week of February 2003. (Fakatselis/Kandala)*

9.1.4.10. *JohnK: I strongly support meeting in Portland in February. It is connectable to anywhere in the U.S. by one hop. It is warmer in Portland than the other venues.*

9.1.4.11. *KeithA: Boulder is nice.*

9.1.4.12. *Vote (Procedural): 12-7-4. Passes.*

9.1.5. Meeting days

9.1.5.1. *Open discussion followed on the number of days needed for the meeting.*

9.1.5.2. *JohnF: Possible schedule:*

9.1.5.2.1. *Monday February 24 at 2pm through Thursday February 27 at 6pm*

9.1.5.3. *JohnF: Is there any objection by a voting member to this schedule?*

9.1.5.4. *JohnF: I hear no objection, so this is the decision.*

9.1.6. Special orders

9.1.6.1. *JohnF: It is now 7:30pm; unfortunately we have no new draft. Is there any objection to amend the agenda to continue ballot resolution?*

9.1.6.2. *SriniK: Point of information: what is the most appropriate time to continue the ballot resolution process? Such as 9:215pm?*

- 9.1.6.3. JohnF: The appropriate time is during this process, since we are covering these proposed resolutions.
- 9.1.6.4. JohnF: Do I hear any objections to amending the agenda?
- 9.1.6.5. JohnF: I hear no objections, so the current agenda topic is replaced with ballot resolution review.

9.1.7. Section 9.10.1 ad hoc group, third motion

- 9.1.7.1. DuncanK: We are now covering the generally agreed (but not unanimously agreed) items in 11-03-064r2-E-LB51-Comment-Resolution_Clause_9.10.1.xls. These are the items marked purple in this document.
- 9.1.7.2. DuncanK described each of the items and the proposed resolutions in this document.
- 9.1.7.3. Motion: Accept the resolution to comment 753 as proposed in document 11-03-064r2-E-LB51_Comment_Resolution_Clause_9.10.1.xls. (Kitchin/Kowalski)
- 9.1.7.4. No discussion
- 9.1.7.5. Vote (Technical): 14-0-5. Passes.

9.1.8. Comment 156

- 9.1.8.1. Menzo Wentink (MenzoW): Packets can age too much.
- 9.1.8.2. MatthewS: There is no way to get rid of old packets; want to have some mechanism for dropping a packet if it is very old.
- 9.1.8.3. MatthewS: Motion: Accept the proposed resolution to comment 156 in document 11-03-064r2-E-LB51_Comment_Resolution_Clause_9.109.1.xls such that internal collisions are counted for retry limit purposes.
- 9.1.8.4. MatthewS: Straw Poll on this motion:
- 9.1.8.5. Vote: 10-5-8 (so, if technical, this wouldn't pass).
- 9.1.8.6. DuncanK: So adjust the proposal to the following:
- 9.1.8.7. Motion: Accept the proposed resolution to comment 156 as proposed by the 9.10.1 ad hoc comment resolution group in document 11-03-064r2-E-LB51_Comment_Resolution_Clause_9.109.1.xls, but with the removal of the word "not" and any editorial changes thus implied. (Kitchin/Kandala)
- 9.1.8.8. MatthewS: Might ask "No" voters if this would change their vote; need to not delay the process any more.
- 9.1.8.9. DuncanK: Will attempt to ask for unanimous consent.
- 9.1.8.10. Srinik: This is about Section 9.10.1.5.
- 9.1.8.11. JohnF: Any discussion of this motion?
- 9.1.8.12. AmjadS: Not strong in either direction. But EDCF functions could be treated as a virtual entity. STA counter is not increasing, but the other functions could be increasing their counts. Not sure of the effect of this.
- 9.1.8.13. ToruU: In the AP EDCF case it may cause a problem.
- 9.1.8.14. MatthewS: I speak for the motion. I'm confused on what the retry counters are for in the STAs. They may only be used to tell

the user what is happening, but have no effect on the actual operation. Believe that the related issues are not being decided here.

9.1.8.15. JohnK: *I speak against the motion. Am worried that this can't be observed.*

9.1.8.16. MenzoW: *I speak for this motion. If it is an internal collision, it always is a real collision. So it is worthwhile signaling that all the way up to the upper level protocols like TCP.*

9.1.8.17. MenzoW: *A reply to JohnK: we may want to add a reason for too many retries. I believe that the other problems can be solved easily.*

9.1.8.18. DuncanK: *Don't care about this, except that we need to get this decided, so I call the question.*

9.1.8.19. Srinik: *Second to call the question.*

9.1.8.20. JohnF: *Any objection to calling the question? I see none, so the question is called.*

9.1.8.21. JohnF: *Is there any objection to passing this motion?*

9.1.8.22. JohnF: *I see none, so this motion is passed.*

9.1.9. Comment 157

9.1.9.1. MenzoW: *I think we should keep the current version. Don't see why fragment would get stuck in a contention window just because they collided a couple of times.*

9.1.9.2. DuncanK: *Not a huge amount of difference, but this formula makes a lot of sense and the implementation is simpler.*

9.1.9.3. MenzoW: *I agree with that. This does fix an error in the 1999 spec.*

9.1.9.4. MatthewS: *I speak against. Would like to have a 1999-spec-like class we want to use. Else we could end up with a lower priority class. It should remain as in 1999.*

9.1.9.5. Partho Mishra (ParthoM): *This seems to conflict with the [1999 spec?].*

9.1.9.6. DuncanK: *No one is forced to implement both; so it is simpler to implement just the new proposal.*

9.1.9.7. JohnF: *Resolution requires 75 percent. The draft stays unchanged until that time. If this resolution [doesn't meet 75 percent] then will have to revisit this later.*

9.1.9.8. Motion: *Accept the proposed resolution to comment 157 as proposed by the 9.10.1 ad hoc resolution group in document 11-02-064r2-E-LB51_Comment_Resolution_clause_9.10.1.xls, but with the removal of the word "not" and any editorial changes thus implied. (Kitchin/Wentink).*

9.1.9.9. DuncanK: *This proposal really is to leave the draft as is.*

9.1.9.10. JohnF: *Voting "No" on this means this issue must be revisited.*

9.1.9.11. Vote (Technical): *15-4-5 Passes.*

- 9.1.9.12. *Motion: Accept the proposed resolution to comment 157 as proposed by the 9.10.1 ad hoc resolution group in document 11-02-064r2-E-LB51_Comment_Resolution_clause_9.10.1.xls. (Kitchin/Wentink).*
- 9.1.9.13. *DuncanK: This is an alternative to what the requester [in the original comment] suggested.*
- 9.1.9.14. *MenzoW: What about amnesty of lifetime?*
- 9.1.9.15. *DuncanK: Might not have been attempted earlier.*
- 9.1.9.16. *MatthewS: What about timeouts?*
- 9.1.9.17. *DuncanK: Yes. Also: part of the point here is to allow implementations to separate out older packets before timeouts.*
- 9.1.9.18. *AmjadS: What about AC 0?*
- 9.1.9.19. *DuncanK: Only the higher priority classes are subject to admission control.*
- 9.1.9.20. *JohnK: I have no problem with doing this, but why doesn't this corrode priority differentiation.*
- 9.1.9.21. *DuncanK: It might somewhat, but unlikely to be very much. If differentiation is doing its job, then the amount of traffic in the bottom class should not be significantly affecting the upper priority classes.*
- 9.1.9.22. *LiwenW: Would this increase probability of collision?*
- 9.1.9.23. *DuncanK: No, because it will time out the backoff counters less frequently.*
- 9.1.9.24. *Motion: Accept the proposed resolution to comment 95 as proposed by the 9.10.1 ad hoc resolution group in document 11-02-064r2-E-LB51_Comment_Resolution_clause_9.10.1.xls. (Kitchin/Kowalski).*
- 9.1.9.25. *MenzoW: Don't have to do this; could just leave the parameters until the next beacon period.*
- 9.1.9.26. *DuncanK: That is correct; this just gives the implementer the option.*
- 9.1.9.27. *MathildeB: Do you transfer the data to another queue?*
- 9.1.9.28. *MenzoW: No, you leave it in the same queue.*
- 9.1.9.29. *MathildeB: I want to keep the top priority traffic as top priority – don't want it to be treated as best effort. If I have a lot of top priority, want to have that dominate the channel. Right now we don't have enough differentiation.*
- 9.1.9.30. *JohnK: I believe that distributed admission control is a good solution.*
- 9.1.9.31. *LiwenW: If running out of bandwidth for highest priority, but have plenty of bandwidth in second level, should the highest priority traffic be moved down?*
- 9.1.9.32. *DuncanK: In the ad hoc group we couldn't decide whether it was worth the additional complexity. We eventually concluded it was not worth the return.*
- 9.1.9.33. *MenzoW: When the budget runs out to zero, you have to change the access parameters.*

- 9.1.9.34. *DuncanK: Then can run out again.*
- 9.1.9.35. *MenzoW: Then you continue going down.*
- 9.1.9.36. *DuncanK: What if first is audio with small TXOPs, and second priority has much larger TXOP size?*
- 9.1.9.37. *LiwenW: It depends on the applications. There are many, many different ones. Can work on some, but not others.*
- 9.1.9.38. *MatthewS: Probably will vote against. We need to modify this motion. At the very least we need to indicate the channel you actually transmitted at – else can't know that you are over budget.*
- 9.1.9.39. *DuncanK: I agree that there needs to be more work on reporting. But the question here is what you do with the packets. This is the best we have right now. Call the question.*
- 9.1.9.40. *SriniK: Second.*
- 9.1.9.41. *JohnF: Any objection to calling the question? Seeing none, this question is called.*
- 9.1.9.42. *Vote (Technical): 14-6-7 Fails.*

9.1.10. Other ad hoc groups.

- 9.1.10.1. *JohnF: Sid, are there any further motions from your ad hoc group?*
- 9.1.10.2. *SidS: No further motions.*
- 9.1.10.3. *JohnF: Srini, any further motions from your ad hoc group?*
- 9.1.10.4. *SriniK: [One possible about 03/063r2, comment 896.]*

9.1.11. Section 7 ad hoc group motion

- 9.1.11.1. *SriniK: It is generally believed that there are no implementations out there that use this bit.*
- 9.1.11.2. *ParthoM: I am against this change.*
- 9.1.11.3. *SidS: What happens to the order bit?*
- 9.1.11.4. *SriniK: It goes away.*
- 9.1.11.5. *SidS: Is that strictly ordered?*
- 9.1.11.6. *SriniK: Yes.*
- 9.1.11.7. *SidS: Is it strictly ordered?*
- 9.1.11.8. *SriniK: Yes*
- 9.1.11.9. *SidS: Talking about dual usage for this bit?*
- 9.1.11.10. *SriniK: If it truly is not being used, then it is essentially free now.*
- 9.1.11.11. *SidS: You run into the problem of obseleting the old standard. We tried to pull strictly ordered out earlier and were told we couldn't. Now you're doing that in a sneaky way.*
- 9.1.11.12. *DuncanK: If this is only for QoS data frames, then it is sent only to QSTAs. Then there is no conflict with legacy devices. Can still be interpreted as strictly ordered to legacy STAs.*
- 9.1.11.13. *AmjadS: What about broadcast/multicast?*
- 9.1.11.14. *DuncanK: We don't ACK those.*
- 9.1.11.15. *SriniK: This really is only about unicast frames.*

- 9.1.11.16. Maarten Hoeben: *In answer also to Amjad: through association you can indicate whether a STA is capable or not.*
- 9.1.11.17. ParthoM: *I'm not sure what the optimization does for you.*
- 9.1.11.18. SriniK: *This is freeing up QoS control.*
- 9.1.11.19. AmjadS: *Association is not sufficient.*
- 9.1.11.20. SriniK: *Also have to check the group bit.*
- 9.1.11.21. Charles Wright (CharlesW): *Does this have anything to do with Carlos Rios's proposal?*
- 9.1.11.22. SriniK: *No.*
- 9.1.11.23. CharlesW: *So what do we need it for?*
- 9.1.11.24. SriniK: *Really need it for a needed two bits.*
- 9.1.11.25. Motion: *Accept the recommended disposition as in document 03/063r2, comment number 896. (Kandala/Kowalski).*
- 9.1.11.26. JohnF: *Any further discussion? Seeing none, the question is called.*
- 9.1.11.27. Vote (Technical): *14-1-9. Passes.*

9.1.12. Summary of current state

- 9.1.12.1. JohnF: *A few statements about where we are headed with this. The Letter Ballot passed with 83 percent. But I have made the commitment that, even though the LB passed, we will go through all comments. We will sometime come up with a recirculation that goes only to the previous participants. If the recirculation ballot fails, we do nothing. We then just go back to the LB51 ballot that got the 83 percent. If it passes with less than 83 percent, then the previous draft still remains as the draft.*
- 9.1.12.2. JohnF: *I have put the Operating Rules on this matter on the server as document 03/130.*
- 9.1.12.3. CharlesW: *What are the limits as to what has been commented out?*
- 9.1.12.4. JohnF: *Yes, we can only change things that have been previously commented on.*
- 9.1.12.5. JavierP: *Can someone who previously voted Yes vote No?*
- 9.1.12.6. JohnF: *Yes, but only on the changes. If the recirculation ballot fails (anything less than 83 percent), then the group has every right to send this [as is] to Sponsor Ballot.*
- 9.1.12.7. Peter Ecclesine: *It's a little bit more complicated; only goes to Sponsor Ballot from the 802 Exec. They can always send things back to the group.*
- 9.1.12.8. JohnF: *Peter is correct. Typically the votes must be in the mid- or high- 90 percent range for specs to be sent to Sponsor Ballot.*

9.1.13. Another Section 7 ad hoc group motion

- 9.1.13.1. SriniK: *There are no more motions. But we do have comments that need discussion.*
- 9.1.13.2. JohnF: *Does anyone in the assembly have additional proposed resolutions to comments?*

- 9.1.13.3. JohnK: Would like to review a 9.10.1 comment on PIFS backoff.
- 9.1.13.4. DuncankK: This is the issue about the smallest backoff of EDCF of 1 in this version rather than 0.
- 9.1.13.5. JohnK: This should be deprecated or prohibited.
- 9.1.13.6. JohnF: Before we continue on about this, does anyone have a motion already ready?
- 9.1.13.7. DuncankK: I make the motion of explicitly deprecating the bit related to this comment.
- 9.1.13.8. SidS: I support the intent, but think there is a simpler way to accomplish this. There is an EDCF AIFS MIB parameter with the range 0 up.
- 9.1.13.9. DuncankK: But your proposal would prohibit its use, not deprecate its use.
- 9.1.13.10. SidS: I believe this is not what the comment is asking for. What does "deprecate" mean here?
- 9.1.13.11. DuncankK: It means "indicate it is a bad idea, but not prohibited".
- 9.1.13.12. JohnK: Straw Poll. Voting members only; vote for one only:
- 9.1.13.12.1. A. Deprecate (should not)
 - 9.1.13.12.2. B. Prohibit (shall not)
 - 9.1.13.12.3. C. Leave as-is (may)
 - 9.1.13.12.4. D. Don't care.
- 9.1.13.13. Straw Poll Vote: A: 2; B: 12; C: 5; D: 6.
- 9.1.13.14. Motion: Propose an alternative disposition to comment 536, prohibiting the use of (shall not use) AIFS=0 by non-AP QSTAs, thereby avoiding EDCF contention with HC access. (Kowalski/Schrum).
- 9.1.13.15. JohnF: Is there any discussion?
- 9.1.13.16. MenzoW: I speak against. If I am an HC, then I will not distribute that same access priority in a beacon.
- 9.1.13.17. MathildeB: I speak for. This is useful in many cases.
- 9.1.13.18. JohnK: I speak for. To answer Menzo's question: [it] can interfere with polled access today.
- 9.1.13.19. DuncankK: I speak against. We're constraining an AP not to transmit an AIFS of 0, so that it can't create interference sources to itself. But this is limited; if they want to interfere with themselves, that is fine. There is no reason to prohibit it.
- 9.1.13.20. CharlesW: An HC wouldn't do this and I call the question.
- 9.1.13.21. KeithA: Second.
- 9.1.13.22. Vote (Technical): 13-8-4. Fails.

9.1.14. Closing

- 9.1.14.1. MathildeB: Draft 03/107r0 is now on the sever.
- 9.1.14.2. SriniK: I want to thank everyone for the nice gesture. [A gift to the editor for all of his hard work.]

9.1.14.3. *JohnF adjourned the meeting at 9:28pm.*

**IEEE P802.11
Wireless LANs**

TGf Minutes for the January 2003 Session

Date: January, 2003

Author: Harry Worstell
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Meeting called to order 10:45

Agenad

0	*	SESSION CALLED TO ORDER	- Bagby	1	10:30 AM	
1	II	Chair's status update, review objectives for session, adopt session agenda, distribute SB results	- Bagby	89	10:31 AM	
2		Recess for lunch	-	60	12:00 PM	
3	DT/MI	SB comment processing / draft revision	- Bagby	120	1:00 PM	
4	*	Recess for break	- Bagby	30	3:00 PM	
5	DT/MI	SB comment processing / draft revision	- Bagby	120	3:30 PM	
		Recess for dinner	-	90	5:30 PM	
TASK GROUP F AGENDA - Tuesday, January 14th, 2003 - 7:00 PM						
6	DT/MI	SB comment processing / draft revision	- Bagby	120	3:30 PM	
		Recess for day	-		5:30 PM	

TASK GROUP F AGENDA - Wednesday, January 15th, 2003 - 1:00 PM

7	DT/MI	SB comment processing / draft revision	-	Bagby	120	1:00 PM
		Recess for break	-		30	3:00 PM
8	DT/MI	SB comment processing / draft revision	-	Bagby	120	3:30 PM
		Recess for day	-			5:30 PM

TASK GROUP F AGENDA - Thursday, January 16th, 2003 - 8:00 AM

9	DT/MI	SB comment processing / draft revision	-	Bagby	120	8:00 AM
		Recess for break	-		30	10:00 AM
10	DT/MI	SB comment processing / draft revision	-	Bagby	90	10:30 AM
		Recess for Lunch	-		60	12:00 PM
11	DT/MI	SB comment processing / draft revision	-	Bagby	120	1:00 PM
		Recess for break	-		30	3:00 PM
12	DT/MI	Review EOW status & plenary report, motions for plenary as required	-	Bagby	120	3:30 PM
		Adjourn Session	-		90	5:30 PM

Motion Adopt agenda 03/010r0

Move Butch Anton
 Second Richard Paine
 Yes 8
 No 0
 Abs 0

Matters arising from minutes
 none

Move to Approve minutes for the November 2002 session

Move Bob O'Hara
 Second Butch Anton
 Yes 6
 No 0
 Abs 0

Goals Review recirculation

	Sponsor Ballot	Recirc 1
Ballot group size	73	73
Affirmative	50	56
Negative	7	3
Abstentions	2	3
Ballot Return rate	80%	84%
Abstention rate	3%	4%
Ballot result	87% affirmative	94% affirmative
New negative votes	n/a	0

The Chair presented the IEEE IP Patent policy Slides 03/024

Comment Resolution:

Document 03/009r0 comment document

Comment 37, 39, 97

Clause 5.4

Suggested change is in Document 02/758

Resolution: Postponed action on comment until the Tuesday PM session

Comment 102

Clause 1.3

Resolution: Motion to accept

Moved by Andrew Myles

Second Butch Anton

No Objection

Comment 99

Clause 1.3

Accepted as editorial

Comment 96

Clause 1.4

Resolution: Accept comment – No Objection

Comment 59

Clause 4.10.4

When should the layer 2 update frame be sent?

Send before receiving response?

Resolution: Decline comment by referring to line 14 and 15 of clause 4.10.4

page 13 It indicates that the AP needs to keep the information from the reassociation request (what ever it was) and so the AP does have the Old AP value to use when it sends its IAPP moved Request primitive

Move Butch Anton

Second Justin McCann

No Objection acclamation

Session recessed for Lunch 12:01PM.

Meeting Called to order 1:02**Comment 30**

Clause 4.5.4

Resolution: Comment Declined The additional L2 frames will not guarantee an improved response. thus adding the suggestion while helping in very specific cases can actually hurt in other cases. The TG feels that while the tendered suggestion remedy may help in certain cases does not see a benefit sufficient to accept .

Move Butch Anton

Second Richard Paine

No Objection – acclamation

Comment 55

Clause 4.7.4

Resolution: Comment Accepted.

Moved Butch Anton

Second Justin McCann

No Objection – acclamation

Comment 35

Clause 5.1.2

Resolution: Comment Accepted. RADIUS doesn't maintain configurable data for the specific AP pairwise groupings. RADIUS acts more like a third party that facilitates the APs to set up inner-communications. Radius dynamically generates the keys that are needed. The RADIUS Server tracks the secret of each Radius Client and then the RADIUS Server will provide the security blob that can be used to talk with another RADIUS Client. We changed "The Security Blocks each contains a shared secret for AP-AP connection to "The Security Blocks each contains information for sharing the AP-AP connection. This information is dynamically generated by the RADIUS server as the Security Blocks are constructed. The Security Blocks are encrypted using the AP's BSSID user password (see 5.3.7.2 & 5.3.7.3) in the RADIUS registry. Also change the "shared secret and it is used" to information" last line 5.1.2

Editorial: Also change Page 30 "AP's support ESP and AH transforms" to "AP's support ESP transforms and ESP authentication algorithms

The new AP sends the Security Block

Move LieWen Wu

Second Butch Anton

No Objections – acclamation

Comment 63

Clause 5.3.1 table

Resolution: Accepted The footnote was still needed to flag some numbers that had not arrived for v4.1 Bob M and Justin M are trying to help get the numbers from the IETF. The numbers needed are for NAS-Port and Server Type The Footnote will be removed when these numbers are included

Moved Butch Anton

Second Justion

No Objections – acclamation

A letter was sent to request numbers from IETF.

Comment 101

Clause 5.3.7.3

Resolution: Accepted Remove the “not”

Moved Butch Anton

Second Bob O’Hara

No Objections – acclamation

Comment 100

Clause Annex B

Resolution: Comment Declined. The MIB was added as a direct result of comments from previous letter ballots. The MIB variables were determined in agreements with other Task Groups. TGf believes that these MIB variables are needed for reasonable operation.

Hold until Tuesday

Comment 103

Clause Annex A

Resolution: Comment Declined. The MIB was added as a direct result with comments from previous letter ballots. The MIB variables were determined in agreement with other Task Groups. TGf believes that these MIB variables are needed for reasonable operation.

Move Justin McCan

Second Richard Paine

Comment 67

Clause General

Resolution: Comment Declined. Same reasoning as before

Moved Bob O'Hara

Second Butch Anton

No Objections – acclamation

There will be a 10 day recirculation ballot.

TGi requests any time TGf can give them for comment resolution of their letter ballot on Wednesday and Thursday.

Session recessed 3:07PM

Tuesday, January 14, 2003 3:35 PM

Called to order by Jon. Rosdahl

Continue resolutions of comments. Document 802.11-03/010r0. Slide 19.

Eight comments are left for today.

CID 100

Why should these MIB entries be in this draft? These are not in other TGs, and no other PARs are expected, so they need to be here.

It was thought that the Encryption MIB might exist in TGi. TGf is at the AP level not the client level so it needs to look out for higher level interests. Comment: TGk may implement them.

Motion: In CID 100,

Move to remove to Annex B

Moved Lwien

Seconded Tim Olson

Any other discussion, no,

Opposition to calling the question, No

2 for, 4 against, 2 abstain motion failed.

Motion:

To accept the following text as the resolution for CID 100.

Comment Declined. The MIB was added as a directed result of comments from previous letter ballots. The MIB variables were determined in agreements with other Task Groups. TGF believes that these MIB variables are needed for reasonable operation.

Moved, Butch Anton

Seconded: Tom T

Discussion: Tim was concerned about the agreements with other TGs. What were the agreements actually?

**Friendly amendment to change: “The MIB...agreements with other Task Groups” with:
“The MIB variables were determined in discussions with members of other Task Groups.”**

Accepted as a friendly amendment.

Discussion? No, Objection to calling the question? No.

4Yes, 2 No, 1 Abstain

This is a resolution to a comment.

After much discussion, the Chair declared this past motion as a procedural because it does change the proposed draft,

Motion passes.

4:16 PM.

CIC 98 - There was discussion about the resolution and the impact on re-circulation. The final resolution was to adopt the resolution as modified:

Comment: Partially accepted. Change “...can use IAPP as a Denial-of-Service (DoS)... “ to ”.. can use IAPP of forged management frames as a Denial-of-Service (DoS).

(refer to the text in the comment tool)

The commenter agreed to the resolution

Motion to approve this resolution

Moved: Butch

Second: Bob

Discussion, No, Objection to call the question, No.

Passes with unanimous consent.

CIDs, 75, 97

Thanks to Jim Allen for taking minutes

Comment

Clause figure 2

Resolution

4.5.1 was incorrect....should have been 4.5.4

Comment

Clause 4.5.4

Add:) The IAPP-ADD function also indicates that any cache entry for the STA must be cleared since a new association has occurred.

Resolution

Comment

Clause 4.8.5

Add: Utilization of Proactive Caching

If the APME is utilizing caching, then the APME must first check the IAPP cache for the STA's Mac Address. If found (cache hit), then a IAPP-MOVE.request does not have to be issued until after a REASSOCIATION-RESPONSE frame. If the Mac Address of the STA is not found in the cache (cache miss), then the APME must issue a IAPP-MOVE.request as usual.

Furthermore, the Mac Address of the Old AP (obtained from the REASSOCIATION-Request frame) is added to the neighbor graph of the APME

Resolution

Clause 4.12 added in blue
(Draft 802.11f-d4.1a)

Clause 4.13 added

Figure 8 new cash request and cash Response added

Figure 13 added association – reassociation and caching
was change from figure12 to 13 when 12 was added

increment all figures from 12

5.1 change : The second(delete) “other” is initiated

Question to go back to figure 12How is IP address obtained

5.1.3 new section added refers also to sudo code in 5.6.2

5.5.1note to see 5.5.3
same note in 5.5.2

5.5.3 added

5.6 added

5.6.1 added has a question and editorial second paragraph change the word independent to dependent

Added 5.6.2 with sudo code

6.1.2 add 2 new values

6.6, 6.7 additions

Comment 63

Partial Resolution: Did receive the IANA multicast address request 224.0.1.178 for IEEE IAPP....Port 3517

Comment 73

Clause General

Resolution: Comment Accepted....Add single statement in clause 5 afterlocal configuration information “or the IETF inverse Address Resolution Protocol (RARP) (RCF 2390)” Also add RARP in the list of acronyms.

Moved Bob O’Hara

Seconded Butch Anton

Unanimous

Comment 74

Clause General

Resolution: Comment Accepted....in clause 1.3 Add “the RADIUS server must provide extensions for IAPP specific operation”

Move Bob O’Hara

Second Justin McCann

Unanimous

Comment 83

Reviewed 83 and was accepted Unanimously

Move to amend the agenda and relinquish the Thursday AM 10:30 to 12:00 session to the Working Group and recess until 1:00 on Wednesday.

Moved Justin McCann

Second Butch Anton

Unanimous

Recessed at 5:35pm

Wednesday 1-15 1:00pm

Call to order

Announcements

Only 2 sessions left for the week
Gave up Thursday session
will cover comments 37, 39, 75, 97

Motion to amend agenda

Add a Special Orders of the day to vote on Bill Arbaugh proposal to resolve the four outstanding comments (37, 39, 75, 97) at 5pm in the Wednesday afternoon session

Moved Butch Anton
Second Bob Moskowitz
No Objection

Comment 37, 39, 75 ,97

add Bill Arbough's changes ac contained in the TGf/McCann edited Draft 4.1 document with add sentences:

1. And 5.6.1 in the first paragraph "The AP can prevent the addition of bogus neighbors by adding only those APs where an access accept message is returned by the RADIUS.
2. New section 5.6.3 "Correctness of Cache" "The correctness of the cash is context dependent and context implementations should ensure that IAPP-CACHE-update is used.
3. New sentence in 5.6.3 "All IAPP-CACHE-update messages for a particular MAC address received before an IAPP-CACHE-request message for that particular MAC address are ignored."
4. New sentence in 5.6.3 "Upon receipt of a new IAPP-CACHE-request message for a particular MAC address, IAPP-CACHE-update messages for that particular MAC address from other APs are ignored."
5. New sentence 5.6.3 "IAPP-CACHE-update message for a particular MAC address with a lower sequence number than previously received are ignore.

Correct Figure 2, 7 and 8 were corrected to reflect the text.

Motion to be moved at 5:00 pm in the Special Orders section

Comment 97

Clause 4.12.1

Resolution: Replace the last sentence in 4.12.1 with “This primitive causes the APME to send frames to each of the APs indicated in the neighbor graph requesting the included context to be cached.”

Peter Ecclesine accepted resolution for some of his comments.

Match wording 103 from 100 “agreements with discussions”

Move Andrew

Second Butch

Arnoud Zwemmer accepted resolution for his comments.

Changed RARP to InARP

One of Arnoud’s still outstanding

Move to reconsider comment 100 Bob O’Hara, seconded by Arnoud

yes 9 .No 2. Abs0

Adopt the resolution as stated

Discussion from Bob O’Hara that it did not have sufficient technical review to warrant acceptance.

PM 3:30 pm session

Motion to change the comment resolution for comment 100

Move to comment resolution as stated

Yes 5 No 0 Abs 5

Move to reconsider the acceptance of the resolution of comment 103

Move Bob O’Hara

Second Arnoud Zwimmer

Yes 8 No 0 Abs 4

New RC1 resolution Comment patricianly accepted and remove annex B

Unanimously

Clause 4.10.4

Move to reconsider resolution on ID 59....Butch Anton second Justin McCann

yes 10 no 0 abs 2

Comment partially accepted replace the IAPP-MOVE-request with a IAPP-ADD-request in the last sentence of 4.10.4.

Vote unanimous

Mike Morten agrees to accept the resolution to Comment number 67.

Recess for 10 minutes to resume at 4:00

Comment 97

Add to 4.12.4:

Special Orders

RC1 Response Comment accepted.

Added Bill Arbaugh's changes as contained in the "TGf McCann -Edit-802.11F-D4.1a

And 5.6.1 in the first paragraph "The AP can prevent the addition of bogus neighbors by adding only those APs where an access accept message is returned by the RADIUS.

3. New section 5.6.3 "Correctness of Cache" "The correctness of the cash is context dependent and context implementations should ensure that IAPP-CACHE-update is used.

3. New sentence in 5.6.3 "All IAPP-CACHE-update messages for a particular MAC address received before an IAPP-CACHE-request message for that particular MAC address are ignored."

4. New sentence in 5.6.3 "Upon receipt of a new IAPP-CACHE-request message for a particular MAC address, IAPP-CACHE-update messages for that particular MAC address from other APs are ignored."

5. New sentence 5.6.3 “IAPP-CACHE-update message for a particular MAC address with a lower sequence number than previously received are ignore.

Correct Figure 2, 7 and 8 were corrected to reflect the text.

Replace the last sentence in 4.2.1withFinish later from Chair97

Moved Justin McCann
Second Bob Moskowitz
Unanimously accepted

Do the commenters accept these resolutions for there commenters

Bill Arbough yes
Armoud Zwimmer Yes
Peter Ecclesine Yes

All No votes have been resolved

Editor states the draft will be updated with in a week

MOTION

•TGf asks that the WG chair accept the comment responses to RC1.

–And

- 1) ask the IEEE balloting service to run the 2nd recirc Ballot to complete before the March meeting;
 - 10 day default time is fine.
 - All docs for recirc will be avail 1 week from mtg end
 - Recirc to complete no later than 2 weeks before the March meeting start.
- 2) ask ExecCom to forward draft 5.0 to Revcom

Moved Butch Anton
Seconded Richard
Unanimous

MOTION

•**TGf Requests the WG Chair pre-submit TGf to RevCom agenda not later than February 16.**

Moved Butch Anton

Seconded Richard Paine

Yes 11 No 0 Abs 0

New Business

TGf did receiver multicast address.

Session Output docs

090r3 comment report

011 Minutes

TGF D5.o

Objectives Re010r0

Move to adjourn

Harry Worstell

second Butch Anton Unanimous.

**IEEE P802.11
Wireless LANs**

Minutes for January 2003 meeting of TGg

Date: January 13-16, 2003

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Abstract

Monday Morning Session

Shoemake calls meeting to order.

1) Need to approved Agenda:

- a) The major concern is whether to reject comments and go to sponsor ballot or resolve comments and go for another round of recirculation ballot before Dallas meeting in March 2003
- b) Letter ballot 50: 88% approval with 94% participation of voting pool contained in documents number 11-02-036
- c) REVCOM is scheduled to meet in June 11, 2003
- d) Standards Board meet on June 12, 2003
- e) Documents 11-03-068r0 with comment for letter ballot 50 is on the server
- f) Document 11-02-714r

2) Motion to adopt the agenda in 78r0 by S. Gummadi

- a) Second by I. Oakes
- b) The motion passes 37/0/0

3) Review and Approve Minutes from Meeting in Kauia 11/2002 in document 11-02-702r1

- a) Motion to approve minute by S. Gummadi and second by D. Allen
- b) Approval by unanimous consent

4) Review of letter ballot #50 Result

- a) By unanimous consent, the group agrees to resolve the comments in document 68

5) The group divided into four groups to address the 300+ comments. The subgroups were general and appendices comments, clause 19 comments, MAC issues, and clause 19.5 and 19.6, which were lead by J. Terry, S. Halford, M. Fisher, and S. Coffey, respectively. C. Andren handled the comments deemed editorial.

Tuesday Morning, Afternoon, and Evening Sessions:

1. The chair M. Shoemake presented the IEEE patent policy to the body.
2. The chair asked the body whether they had knowledge of any patents or future patents that would affect the TGg standard.
3. No one came forward with any information.

The body members rejoined their respective subgroups to continue comment resolution.

Wednesday Morning Session:

1. The chair M. Shoemake reviews the status of comment resolution
2. Inform the body that S. Kerry has received numerous requests for an official copy of our draft to be made available for public purchase.
 - a. Motion: Move to request publication of draft 6.0 of the IEEE 802.11g immediately following the January 2003 session. Mover Andren/Hansen
 - b. Passed: 16-1-5

Wednesday Afternoon & Evening Sessions (Dr. Jeffrey Wojtiuk):

TGG Minutes Wed PM

Started 13:10

Presentation Steve Halford, Intersil. Doc no. IEEE 802.11-03/101r0

NonERP Indication Element: Issues from Draft 5.0

Main issues that the presentation addresses are: When to set the nonERP present bit and when to set Use_protection bit.

Question during presentation on length of time required for timeout for NonERP present bit, Steve felt about 5minutes.

Presentation recommendation: require prtotection mechnaisma whenever NonERP present bit is set to 1.

suggestions

- 1) Use_protection=1 if NonERP present =1; 2) can set Use_protection=1 anytime.

Presentation contains propsed text

Dick possible associated station loss of protection for everyone else by turning of protection?

Steve: yesy could be true but there are tradeoffs

Possible for BSS???

Protect against overlapping BSSs that are not ERP aware

Possible to make this implementation specific???

It largely is now although the standard hints at protection mechanism use. Past feedback/queries on protection mechanism use. Steve feels a suggested way forward would be better.

Sri do we need the 2 bits

Steve you do need 2 bits. Sri If the no nonERP devices why set protection hi
Steve for high potential for .11b need to do CCA may need protection set high. Steve mentioned 3 states of operation.

Jim :prevent overlapping BSSs two bits are required at least three separate cases. Prevent propagation of overlapping BSSs. Discussion ensued on these scenarios. NonERP does not propagate unless you set NonERP. Concern is that protection can drop right off.

Jan benefits are there but how many no votes ?

Matthew: Do you intend to motion this steve? Who would turn vote yes to no? largely undecided

Dick: present of adjacentBSS beacon doesn't necessarily cause collisions. Concern over BSS flexibility. Menzo suggests splitting the motion into two issues. Nonerp and use protection.

Nonerp and use protection and

Steve: Behaviour for setting nonERP present, would this change votes

Question on timing, but timing not specified. Requirement for a time specification for support. Discussion on timing, 10s of beacons order of magnitude

Matt: votes change for timing specified??? Ongoing discussion regarding 3 b) of proposed text. Of 7.3.2.12.

Necessity of clause 3c)

Who no vote on mandatory 3 ?? More no votes. Steve wants to take it offline.
Clauses 1) and 2) mandatory??? More yes votes.

Tim not ready with presentation yet.

Matt: steve short break. Clause 19 tab and clause 19.6 tab

Comment resolution 11-03-068r6-G-LB50

Clause 19 UC3,6,10 UC12, UC19, UC20, UC35 UC49 pulled out for discussion.
Clause 19.5 and 19.6 rows 4 to 7 approved for unanimous consent.

Steve to go through clause 19 tab

Row 3: 19.1.2 coexistence issue – discussion. Johns reply was please supply text, willing to consider any proposed text. Also no proof of concerns and it is not the position of the standards group to supply this. Also the group does not believe there is a coexistence problem. Dick asks about row 4 response but this may not be sufficient. Row 3 concern is slightly different. Steves suggested text references 802.15.2 practices. passed by UC.

Row 5: 19.1.2 overlap of ERP-OFDM rates and DSSS-OFDM rates. MAC group has a complete solution on this and resulting from a similar comment to their group.
Matt – response for row 34. Suggested added text for section 7.3.2.2. DSSS OFDM modulation and rates can never be basic, along with PBCC.

Gunner has a presentation to address this problem 11-03-106r0.
Suggests formats for coding rates and modulation. Discussion ensues, concerns over potential changes requiring other changes in the standard as knock on effects.
Matt S – come back to this later when reviewing outcome from Matts group.

Back to Steves comments – suggest to use Matts comment response in his row 34. Passed by UC.

Row 6: 19.1.2 DSSS OFDM operation without ERP OFDM. – Matt feels his row 34 comment attempts to clarify this issue. Adopt resolution using row 34 response. Accepted by UC

Row 7 is an exact copy of row 3

Row 10 19.2 Medium management state machines – 17.2.1 and 14.2.1 editor notes this is a copy of these. Suggest acceptance of comment with appropriate cross reference to these sections. Another suggestion is a relabel to PHY management state machine.

Break 3:00

Resume 3:30

Tim Wakely – Hewlett Packard - presentation after the break document IEEE 802.11-03/058r0 results from lab measurements of interference of .11g and .11b on .11b radio.

Row 10 change text to PHY dependant MAC . passed by UC.

Row 14 19.2 PBCC and ER PBCC in table 19.2.2. change all instances. Passed by UC

Row 16 19.3.2.1 bit set definitions. Adopted by UC

Row 23 19.3.2.3 ERP OFDM PPDU format ambiguous. Discussed and adopted proposed change by UC

Row 24 19.3.2.3 ERP OFDM PPDU format ambiguous. Discussed and adopted proposed change after removing the last sentence by UC.

Row 30 19.3.5 ERPED requirement for STAs . Discussion on this, suggest change to ED and CS. Suggest a counter reference to ERPED changed to ED. Drafted a response pointing out the differences between CCA modes 1 and 5. Offers a clarification. Passed by UC

Row 31 is identical so adopted by UC

Row 36 19.4.4 short slot times in an IBSS. Suggest 20us in IBSS mandatory. Editor to insert comment in 19.4.4, addition of text in section 7.3.1.4. Adopted by UC.

Row 37 19.4.6 CCA modes, discussion on whether this applies to CCA modes 1 and 5. editor has changed text to address this. proposed resolution adopted by UC

Row 44 19.4.7.2 locked clock requirement. Proposed editorial changes adopted by UC

Row 45 19.5 co-modulation interference. Proposed resolution adopted by UC

Row 46 19.5.2 RX adjacent channel rejection. Yuri has concerns and is welcome to bring along supporting data at the next meeting. Proposed resolution adopted by UC

Row 56 19.8.1 coding for all rates in table 19.8.1. Use row 34 solution discussed previously. Proposed resolution adopted by UC

Row 61 19.8.4 accept change see row 36. Proposed resolution adopted by UC

Row 64 19.8.4 sri and ivan have proposed change. Yuri has concerns but MAC group has resolved this problem Sri suggests change. Ivan refers to row 80 of MAC issues tab. Discussion on rate scaling when backing down the rates Cwmin change does not have to be a dynamic change. Suggest row 80 of MAC issues. Proposed resolution adopted by UC.

Clause 19.5 and 19.6

Row 2 the same as row 45 of clause 19

Row 3 clause 18 there was a change that confuses things. Steve, this was modified to identify the existence of short preamble in clause 19. resolution comment withdrawn

Editorial

Row 6 19.2 Carl discussion on Ivans comments editor to change

Several comments on 7.3.1.4 now radically different

Comments on row 115 E-1 no recommendation for IBSS

Carl has no questions for the group at this time

Johns group comments to be discussed tomorrow

General and annexes

Row 3 a4.1.2 support of 36 rate – propsed redefiine ERP PICs table. Proposed resolution adopted by UC

Row 10 A4.4.1 PIC elements refer to an old version. Propose to direct editor to update PICs based on MAC comment resolutions. Proposed resolution adopted by UC

Row 12 A4.4.1 identical to row 10. Proposed resolution adopted by UC

Row 13 A4.4.1 PC 31. Editor to update PICs with row 11 in MAC issues. Proposed resolution adopted by UC

Row 15 annex C description of MAC changes. MAC SDL changes. changes to be resolved by March 2003. Discussion of concern over late changes to normative text. Ongoing discussion over sponsor ballot concerns. Propose to counter and modify draft to delete text calling for removal of Annex C. Proposed resolution adopted by UC

Row 16 Changes for row 15 encompass resolution to Row 16 comments.
Proposed resolution adopted by UC

Row 39 mixed modulation. Proposed rejection of comment addressed in row 2 of 19.5 which was rejected. Mixed slot is addressed in E-3. Proposed resolution adopted by UC

Row 18 Annex D DSSS OFDM MIB variables. Not resolved take this out of UC

Meeting adjourned at 17:43

Thursday morning session
Chair called session to order.

Will call for unanimous consent at 9am today on General and Annexes comments marked in column j with a “y”.

Will issue draft r10 by 8:30. Will contain updated comments from Matt Fischer’s group that is working on the MAC tab.

- 1) Chair reviewed the current status of comment resolution: ask for acceptance for comments marked unanimous in the General and Annex and MAC issues in morning session. Review comments that need to be discuss by the task group.
- 2) Announce that TGg has a room reserved to do editorial changes to the draft
- 3) WiFi Alliance issued a letter, shown in document 11-03-077r0-G, requesting a TGg meets its published schedule. Brian Matthews agreed to lead a small group of members to draft a respond letter to the WiFi Alliance’s request.

Comment resolutions for General and Annexes of doc. 11-068r9:

- Row 18 – Rejected by unanimous consent.
- Row 34 – Deleted Annex E-3
- Row 19 – Countered. See resolutions to MAC comments 54-56.

Comment resolution discussion for MAC issues

1. Row 2 – Countered. Clarification to be made based on
 2. Row 11 – Rejected by UC. CTS-to-self is kept in the draft
 3. Row 17 – Accepted.
- Row 35 – Countered. Accepted proposed resolutions.

Comments in rows 50, 54, 55, and 56 are handled together as they pertain to the same problem. In addition, the accepted resolution for these comments will apply to comment 19 in the General and Annex tab.

Row 56 – Counter. Add sentence stating that the recommended practice for setting of the Use_Protection bit is provided in UC

Approved by UC all proposed resolutions in 11-03-068r10 General and Annexes tab, except rows 19, 28 and 29.

Will call for UC on items marked for UC in 11-03-068r10 at 10:30am after the break.

Row 54 – Counter. A counter to comment in row 54 was to add the following non-normative text, “Examples of when the NonERP_Present bit may be set to 1, include, but are not limited to:” The word “may” was specifically chosen. There is currently no requirement on the use_protection bit, therefore a device that never turns on the use protection mechanism bit is strictly compliant, because the setting of use_protection has been left up to the implementer. Adopted by UC.

NonERP indication element in 7.3.2.13 was changed ERP indication element as a counter to comment 44.

Comment in row 55 is rejected by unanimous consent. The proposed resolution by commenter was to define a parameter aNonERPTIMEOUT_TU.

Comment in row 56 is counter. The recommended behavior for setting of the Use_Protection bit is provided in the informative Annex E

The chair asks the group to approve by unanimous the comments in MAC tab in rows marked with yes in document 68r10. There were not any objections. Approved.

Comment in row 50 is covered by the comment resolution in row 56, -- counter.

Comment in row 60 is treated as the comment in row 11 and reject as well

Comment in row 75, a straw poll will be conducted to assess the body's view to adopt the following text:

All control frames which initiate a frame exchange shall be transmitted at one of the rates in the BSSBasicRateSet (18/7/6-y/n/a)

The chair asks that if the text above is adopted shall it cause a member to generate a new 'no' vote or maintain his/her current 'no' vote. Move us to comment in row 88.

Accept comment in row 88 and add a new paragraph before the one that begins: “All control frames sent in response ..

A simple strawpoll to gauge the group’s view of comment in row 88: Use of protection mechanism shall not be set if there are non clause 15 or 18 rates contained in the BSSBasicRateSet (3/13/12)

Continuation of comment in row 88: “All control frames sent in response ..” – the new paragraph is: “All control frames which initiate a frame exchange shall be transmitted at one of the rates in the BSSBasicRateSet, unless the transmitting STAs protection mechanism is enable, and the control frame is a protection mechanism frame, in which case, the control frame shall be transmitted at a rate according to the separate rules for determining the rates of transmission of protection frames in 9.10.” – also, delete the phrase “or initiating a frame exchange” from the paragraph that begins, “All control frames sent in response ...” modify the sentence in 9.10 which begins: Protection mechanism frames shall be sent using clause 15 or clause 18 waveforms ... to become “Protection mechanism frames shall be sent using one of the mandatory rates of clause 15 or clause 18, and using one of the mandatory clause 15 or clause 18 waveforms”

Returning to comment 75: accept – add clause 9.2 and instruct the editor to create an editing instruction which requires the deletion the last two sentences of the second to last paragraph of 9.2 - the shall language in these sentences is effected through the observance of the rules in 9.6 - for legacy implementations, the new rules for 9.6 effectively collapse to produce exactly the requirements of 9.2 - for 802.11g, the rules allow an exception for the 2nd shall of the paragraph in 9.2

Comment on row 87: accept the proposed resolution.

Comment on row 94 is accepted the same as the accepted comment on row 88.

Comments on rows 100, 102, and 108 are accepted since they are addressed in the comment on row 87.

Comment on row 113 is accepted since it is addressed in the comment on row 11.

Comment on row 115 is withdrawn by the commenter.

Comment on row 107 is counter and the proposed solution in row 88 given as argument.

Comment resolution was completed at 2:05 PM.

Gunnar Nitsche presented document 11-03-106r0-G and request strawpoll at the end of the presentation. A strawpoll requested by Gunnar, which states “Do you want to have a new rate coding in the extended supported rates element?” Results: 9/18

Document 68r12

The chair proposed to proceed with a series of motions to move us toward a recirculation ballot The series of motions are the following:

Motion:

Move to direct the editor to incorporate the adopted resolutions in document 11-03-068r12 into draft 6.0 and post draft 6.p to the 802.11 server by 7:30pm on January 16, 2003

Movers: A. Sanwalka/D. Allen

Result 28/0/1

Motion

Move to request on 802 ExCom e-mail ballot on the question of conditional approval to forward to sponsor ballot (Procedure 10) Draft 6.0 of IEEE 802g

Mover: M. Paljug/M. Fisher

Result (28/0/3)

Motion

Move to request a 15-day Working Group recirculation ballot on Draft 6.0 of IEEE 802.11g with an opening date of January 20, 2003 and a closing date of February 6, 2003.

Mover: M. Fisher/S. Gummadi

Result (30/0/1)

Motion

In response to the WFA letter to the IEEE 802 Executive Committee (doc. 11-03-077), move to forward the draft response in document 11-03-123r1 to the IEEE 802.11 Working Group

Mover: S. Kerry/B. Matthews

Motion to amend document 11-03-123r1 to 11-03-123r2

Mover A. Sanwalka/S. Kerry

Results (31/0/1)

Motion

Whereas IEEE 802.11 Task Group G would like to have Sponsor Ballot comments to resolve at its March 10-14, 2003 session ...

Contingent upon obtain Procedure 10 approval for 802.11g and contingent upon execution of the 15-day recirculation ballot on Draft 6.0, reject all comments submitted on the 15-day recirculation ballot, and contingent upon meeting all the requirements of Procedure 10, request a 30-day Sponsor Ballot on 802.11g Draft 6.0 with a targeted starting date of February 7, 2003.

Movers: S. Gummadi/V.K. Jones

Amendment to the above motion by unanimous consent to the following

Contingent upon obtain Procedure 10 approval for 802.11g and contingent upon execution of the 15-day recirculation ballot on Draft 6.0 and contingent upon meeting all the requirements of Procedure 10, reject all comments submitted on the 15-day recirculation ballot and request a 30-day Sponsor Ballot on 802.11g Draft 6.0 with a targeted starting date of February 7, 2003.

Results (28-0-6)

Motion

Move to request that the ANA issue 802.11g three new status codes and one new element ID. (Status codes requested are 25-27 and ID number 50.)

Movers: Andren\A. Sanwalka

Approved by unanimous consent

Meeting Adjourn for the session

IEEE P802.11 Wireless LANs

Meeting Minutes for 802.11h January Interim, 2003

Date: January 12, 2003

Author: Peter Ecclesine
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Monday, January 12, 3:30PM session

Peter Ecclesine appointed Secretary for the January Interim
Mika Kasslin presented IEEE 802.11-03/067r0 TGh Agenda, and 03/057r0 TGh Status and Meeting Objectives and Agenda
Reviewed the agenda to pick which timeslots to give back. Keep Tuesday 10:30AM, Wednesday 8AM, Thursday 3:30PM, give back night meetings and other day timeslots.

Mika K Moved to approve the modified agenda 03/067r1
Approved unanimously

Review and approve 02/719 November Minutes
Mover Bruce Kreamer, Seconded Andrew Myles
Approve 17 Negative 0 Abstain 0 26 people in the room

Next a brief look at 03/043r0 SB comments received so far

Next update on Harmonized Standard and preparations for WRC-03
Carl Stevenson reported that CITEL heard proposals from Brazil, Canada and USA. PCC2 and PCC3 are now combined into PCC3. All three were put in the draft IAP, to be closed in Orlando in February.
Andy Gowans reported from JPT5G, and it is revolving around simulation results . . .
Mika K emphasized the parameters may change, so we must focus on defining the parameters, but not their values.

BRAN 31d096 PE (Public Enquiry) report is in the ETSI BRAN mirror
Table D.1:DFS requirement values:
Interference Threshold -52dBm
Currently Channel Availability Check Time 60 s
Channel Clearing Time 1.0 s
Channel Move Time 10 s

The next ETSI phase is to approve a tentative Harmonized Standard and send it to the ETSI national vote.

Mika K expects that the ETSI vote is known in mid June

Adjourn at 5:27PM

Tuesday, January 13, 10:30AM session

Opened with 03/043r1 on subm on the server.

All comments received by January 10th, 2003 accepted or declined, and results are in 03/043r2

Recessed for the day at 11:41AM

Thursday, January 15, 1PM session

Update status on the Sponsor Ballot

We are forced to extend SB by ten days at a time (now open to January 23, 2003), until 75% of the SB pool are received. Are now ten votes shy of the return limit. SB will call the day that enough ballots have been received.

Set agenda for next meeting

Process newly received comments, address events in Europe, then hopefully proceed to RevCom in July
Mika K proposes to have one ad hoc teleconference when SB closes and a new draft is available [Feb 13, 2003 9PM Finland time, 2PM EST, 11AM PST]. That agenda is review open comments and new updated draft D3.2 (in the private area). Probably ask for eight hours of meeting in March plenary.

Motion to adjourn Andrew Myles, Seconded Leo Monteban

Recessed for the week

**IEEE P802.11
Wireless LANs**

**TGi Fort Lauderdale Interim Meeting Minutes
January 2003**

Date: January 13-17, 2002

Author: Frank Ciotti
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Abstract

Minutes of the 802.11 Task Group I meetings held during the 802.11 WLAN Working Group Interim Session in Fort Lauderdale, Florida from January 13th – 17th, 2003.

Monday, January 13, 2003

10:30am

Call to Order & Agreement on Agenda

Meeting called to order on Monday, January 13, 2003 10:50am by Chair Dave Halasz.

Chair: Agenda discussion

Proposed Agenda:

- o Chair's Status
 - o TGi Draft 3.0 LB52
- o Review IP Policy
- o Comment resolution of LB52 (draft 3.0 of TGi)
 - o Request submission presentations to address specific comments
 - o Comment resolution
 - o Review Letter Ballot 35 comments
 - o Submissions to work towards a motion
- o Letter to the IETF
- o Prepare for next meeting.

Chair: Are there any changes to agenda?

None

Chair Status

Chair: Letter Ballot 52 of draft 3.0 closed at midnight last night. The results will be presented after review with other chairs. The next order of business is comment resolution. There are over 2000 comments – with this many comments, we cannot go to Sponsor Ballot even if we pass Letter Ballot.

Comment: What is the split of tech vs. editorial?

Chair: I haven't got that far yet. They are all in Excel now.

Review IP Policy

Chair showed the two slides requested by WG chair "IEEE SA Standards Board Bylaws on Patents in Standards" and "Inappropriate Topics for IEEE WG Meetings". Any objections are to be made to either the WG or TG chairs.

Letter to IETF

Chair: A letter has already been sent to IETF, but we may want to update it. Possibly for Thursday night.

Submissions for comment resolution

Chair: are there any submissions for comment resolution

Jesse Walker 03/xxx - title

Nancy Cam-Winget 03/xxx - title

Paul Lambert 03/xxx - title

Chair: Are there further comment resolution submissions?

None

General submissions:

Chair: Any General submissions?

Matt Fischer 03/xxx – Byte order in IV (will be in TGe)

Fujio Watanabe 03/xxx – Pre-authentication

Jesse Walker 03/xxx –

Marty Lefkowitz

Dan Harkins

Bill Arbaugh

Nancy Cam-Winget 03/xxx

Submissions for comment resolution

Submission: Jesse Walker – document 03/046r0 – Motions to Address Some Letter Ballot 52 Comments

There are 3 classes of technical comments

- Non-controversial
- No solution available
- Need to be done, but consensus is needed.

Discussion:

None

Motion by Jesse Walker:

Add appropriate informative notes indicating the limitation of the pre-shared key.

Second: Mike Moreton

Discussion:

Comment: There is some text in the draft already regarding caution for pre-shared keys in the IBSS case.

Jesse: If the key came from a password.

Comment: I'm against the motion until better text is available. I'm not sure what "appropriate" is. This is useful in home markets. I agree some informative text needs to be changed or added, but I don't want to scare some people off.

Comment: PSKs are not scalable. Also, the organization of informative notes in the draft is confusing.

Comment: The last paragraph of 8.4.4 has comments for the IBSS case.

Motion by Jesse Walker:

Postpone motion until Tuesday at 1:00pm

Second: Nancy Cam-Winget

Vote: 31-0-1 Passes

Submission: Nancy Cam-Winget – doc 03/047r0 – RSN IE provided in 3rd message

Comment: If we do this, we effectively are allowing the encryption to be changed after Association.

Nancy: The way it is currently defined in the draft – there really there is no negotiation.

Comment: Can we discuss informally before a motion is made?

Chair: Any objection to recess until lunch?

None

Recessed at 11:42am

Resume 12:10pm

Straw Poll:

We should proceed by breaking up into groups to address the Letter Ballot comments until Wednesday.

Result: 6-15-17

Chair: It appears that we want to address the comments as a single group.

Letter Ballot 52 Technical Comment processing

Comment 1672:

Comment: We should talk to Shrini to what he really meant.

Comment: We don't protect the Burst-ACK mechanism.

Action: We do provide replay protection for the MPDU for directed traffic even when Burst-ACK is used.

Comment 118

Comment: TGi cannot reference draft standards, so TGe has the following options:

- 1) do the security themselves
- 2) work with us to define it
- 3) TGi waits until TGe is approved to add security.

Action: TGi cannot reference draft standards.

Comment 144

Action: TGi cannot reference draft standards.

Comment 145

Action: To be addressed by Paul Lambert in a later submission

Comment 147

Action: To be addressed by Paul Lambert in a later submission

Comment 160, 162, 163, 175, 194, 196, 247, 285, 287, 807

Action: To be addressed by Paul Lambert in a later submission

Comment 1065

Motion by Paul Lambert:

Remove WRAP from the TGi draft

Second: Bob Moskowitz

Discussion:

Comment: I would like to see a straw poll first.

Chair: We can't if there is already a motion on topic.

Comment: We don't have voting tokens yet.

Comment: If someone wants to implement WRAP, they can refer to draft 3.0

Vote: 18-1-14 Passes

Chair: If anyone would like to protest the vote due to lack of tokens, you may do so this week.

Comment: Perhaps you should get a list of votes

Chair: Not necessary.

Motion by Tim Moore:

The Information Element value for AES WRAP Cipher Suite should be left assigned but marked historical.

Second: Dorothy Stanley

Discussion:

None

Vote: 23-0-5 Passes

Comment 1072

Jesse: 802.1aa is trying to re-craft 802.1x such that it will not support 802.11.

Comment: The work done on the .1aa state machine cleans it up for .11 use.

Action: Already considered and rejected

Comment 1073

Comment: We do support Pre-shared keys.

Action: Considered and rejected - 802.1X supports the Authenticator and AS to be co-located without the use of a protocol such as RADIUS.

Comment 1074

Action: Reject – Already accommodated via TSN.

Comment 1075

Action: Accept – Eliminate all references to WRAP, and descriptions thereof, in the text

Motion by Paul Lambert

Remove TKIP from the TGi draft

Second: Al Potter

Discussion:

Jesse: Against: Will send wrong message to press and market

Comment: Against: Attractive, but customers want something that will work with legacy hardware

Comment: Against: WiFi WPA is based on this work

Comment: Against: I understand the desire for simplicity, but TKIP is needed for customers.

Comment: Against: Motion was passed to address existing as well as future products.

Chair: 802.11 put WEP in the standard. It is our responsibility to fix it the best we can.

Vote: 3-26-5 Fails

Comment 1092

Chair: Does Mike have motion for new text?

Mike: No, I prefer that Jesse make these types of changes.

Action: Agree with comment, further work needed to craft motion. Mike Moreton volunteers.

Straw Poll:

Agree with the suggested resolution to Comment 1092

Result: 13-0-19

Comment 1258

Action: Reject - WRAP is removed so there no longer is a difference in MSDU Vs. MPDU encryption between CCMP and WRAP. The additional complexity for CCMP to protect MSDU's in addition to MPDU's is not worth the additional utility.

Comment 1262

Action: We cannot reference a draft standard

Comment 1303

Action: Agree – WRAP has been eliminated.

Comment 1309

Comment: This would change the base 802.11 draft.

Comment: We do flip-flop in one spot. We could change that and probably should.

Comment: The change requested in beyond the scope of the TGi PAR.

Action: Rejected – Beyond TGi PAR

Comment 1333

Comment: I don't know why TGe is recommending procedures that require security if they are unable to provide security for them.

Comment: To be fair, TGe cannot reference the TGi draft either.

Comment: We should suggest an action that would result in the best possibility of advancing both groups.

Comment: We could look at the work we did several months ago and craft some text based on that.

Chair: We have mechanisms in the TGi draft that can be used for Side Channel communications.

Comment: I don't know if we know that.

Chair: I don't know if we don't know that.

Comment: We could get a small group together and come up with a proposal.

Comment: This is a major piece of work.

Jesse: And I'm not sure where put it in our draft, or if it belongs in the TGi draft at all.

Comment: Excellent start of a maintenance PAR.

Chair: Side channel communications falls under an IBSS, which can be handled with Pre-shared Keys.

Action: We cannot reference a draft standard.

Comment 1404

Action: We should add an information note. The TGi assumption is that if a station supports TSN, then the station should support TKIP.

Comment 1537

Action: Defer

Comment 1538

Jesse: We also haven't solved the race condition problem when both STAs startup at the same time.

Comment: The race condition is being looked at in .1x by the security SG.

Action: Defer

Comment 1613

Comment: There are some submissions that will be presented that address this issue.

Jesse: I don't like the presupposition.

Action: Working on a solution.

Comment 1664

Comment: We should not make our model different than the 802.1x model.

Comment: I agree with the commenter. The architecture of 802.11 to allow Pre-authentication without Association has been ignored. Joining the Authentication with data transfer is a bad idea.

Comment: One nice feature of the current draft is the ability to send the Pre-authentication via the current AP.

Comment: If Pre_authenticated, the layer 2 update frames will redirect switch traffic to the new AP before the roam has occurred.

Comment: We should defer this because there are several issues related to this topic. For example, placing the 802.1x frames on the DS poses a security risk.

Comment 1665

Jesse: Fair comment. Probably editorial unless I find something that requires a vote.

Action: Agreed

Comment 1666

Action: Agreed – however the editor would like help in identifying all locations where 802.11 Authentication is missing.

Comment 1855

Action: Tim Moore to provide submission

Comment 1879

Chair: We don't have a PICS for TSN. Will adding the PICS clear this up?

Action: There is already a clause on TSN (8.4.4.1) to which we are adding text to clarify (see Comment 1092)

Comment 1916

Comment: This is the model that 802.1aa is pursuing.

Comment: That wasn't what we asked for. What changed?

Comment: There was some problem with portValid.

Comment: We set portValid after the keys have been exchanged.

Action: Bob Moskowitz will review the 802.1aa meeting minutes to see why this choice was made.

Comment 1931

Comment: In the 802.1aa meeting there was a discussion to define a generic key exchange mechanism within 802.1X. This mechanism is independent on the Authenticator and Supplicant. In 802.11i they are bound together. The new 802.1X state machine was written last week.

Action: defer and address with 802.1X items later

Comment 1957

Action: Defer – we cannot reference a draft standard.

Comment 1997

Action: Reject – non-specific. Which markets and why?

Comment 2069

Action: Agree – working on it. Defer to fast-roaming work

Comment 2070

Comment: It appears what is wanted is a RADIUS packet dump in an Annex

Action: Reject – lack of clarity

Comment 2071

Action: Defer to 802.1X comments

Comment 1427

Action: Accept? The text should say all receive sequence counters should be initialized to the receive sequence counter. Note – this is the transmitter’s sequence counter.

Comment 1198

Action: The key is the collection of keys as specified in clause 8.6.

Comment 1797

Action: Motion to adopt new text

Motion by Tim Moore:

In clauses 10.3.11.1.2 and 10.3.12.1.2 replace text

“This parameter is valid only when the key type is Pairwise and contains an IEEE 802 address”

with

“This parameter is valid only when
the key type is Pairwise, or when
the key type is Group and is from an IBSS STA”

Second: Jesse Walker

Discussion:

None

Vote: 25-0-5 Passes

Recess at 5:32 until 1:00 pm tomorrow

Resume tomorrow with comment 1798

Tuesday, January 14, 2003

1:00pm

Chair: Are there people who have motions?

Yes.

Chair: Before we get started, we have a general presentation from AT&T. Any objection to having that presentation now?

No objection.

Presentation: Joe Huele (AT&T) - doc 03/001r0 - A Service Provider View of QoS Needs for Hot Spot and Public Venues

AT&T forming Cometa – goal to deploy hotspots within US.

A Look at Hot Spots and Public Venues

Cometa

- Services not sold directly to the public; rely on ISPs.
- WLANs proliferating; high speeds result in reduced range
- Devices used in enterprise likely the same as used for HS/PV space.

QOS required for bandwidth tiered service, IP telephony, gaming, streaming services.

Perception of Market and Growth

- 16M devices this year.
- Roaming relationships, build customer base
- Goal – provide wireless access within 5 minutes of anyone in the top 50 US metropolitan areas.
- Deploy tens of thousands of APs by 2004

Jesse: In our environment, the network needs to authenticate the client as well as vice-versa.

Joe: We are anxious to get out of web-based authentication and into that model using certificates.

Joe: Customers want the same level of protection they get as when they use dial-up.

Comment: What is the timetable for rollout?

Joe: Before the end of this quarter we will have some hot-spots up. We will be starting service before 802.11i is finished and then add more security as the standard matures.

Joe: the WLAN hotspot is more like dialup than cable modem, because with a DOCSIS cable modem, we know who the client is.

Chair: Are there any further questions on Joe's presentation?

None

Chair: Are there any motions that people would like to make?

Submission: Jesse Walker – doc 03/046r0 – Pre-shared keys

Jesse: In the draft, there seems to be an underlying presupposition that there is a single pre-shared key.

Motion: by Jesse Walker

Add informative notes indicating the limitations of the pre-shared key:

“Informative Note: Implementations may support different pre-shared keys for each pair of communicating STAs.

Informative Note: Configurations that share credentials, such as the PSK, may offer acceptable security in some deployments. However, using the same credential among more than two directly communicating STAs may allow any member with that credential to launch replay and forgery attacks.”

Second: Dorothy Stanley

Discussion:

None

Vote: 26-0-2 Passes**Motion: by Jesse Walker**

In 8.3.2.4.4 add text

“A receiver shall discard any MPDU protected by a PTK that is received out of order. For all MPDUs a receiver shall increment the value of dot11RSNStatsTKIPReplays for this key”

and in 8.3.4.4.8 add text

“A receiver shall discard any MPDU protected by a PTK that is received out of order. For all MPDUs a receiver shall increment the value of dot11RSNStatsCCMPReplays for this key”

and add a MIB variable

“dot11RSNStatsTKIPReplays OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
DESCRIPTION: "Counts the number of TKIP replay errors detected."
::= {dot11RSNStatsEntry 15}”

<Jesse to provide text for more motions>

Second: Tim Moore

Discussion:

Comment: Is this an insider attack where a member can replay multicast traffic?

Jesse: Yes

Comment: Why do we need to keep track of this count?

Jesse: There is already a counter for CCMP. I wanted to a symmetrical count for TKIP.

Comment: Is this counter the 802.11 MAC sequence number?

Jesse: No, it is our Packet Number (PN).

Jesse: the key we are using is symmetrical, so any member with the key can forge a replay.

Comment: Why are you mentioning PTK for broadcast traffic?

Jesse: I wanted to keep that part of the text.

Comment: If this passes, we gain something but loose something.

Jesse: Right, we gain the ability to allow multicast traffic to continue even after a replay.

Comment: But we loose the ability to protect against replays? With this algorithm we will pass the replays through.

Jesse: So we need to decide which is worse, block all traffic that is perceived as replays....

Motion to amend by Tim Moore:

In 8.3.2.4.4 add text

“For all MPDUs a receiver shall increment the value of dot11RSNStatsTKIPReplays for this key”

and in 8.3.4.4.8 add text

“For all MPDUs a receiver shall increment the value of dot11RSNStatsCCMPReplays for this key”

and add a MIB variable

“dot11RSNStatsTKIPReplays OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
DESCRIPTION: "Counts the number of TKIP replay errors detected."
::= {dot11RSNStatsEntry 15}”

Second: Clint Chaplin

Vote: 18-1-6

Motion to amend by Tim Moore

In 8.3.2.4.4 add text

“A receiver shall discard any MPDU that is received out of order and shall increment the value of dot11RSNStatsTKIPReplays for this key”

and in 8.3.4.4.8 add text

“A receiver shall discard any MPDU that is received out of order and shall increment the value of dot11RSNStatsCCMPReplays for this key”

and add a MIB variable

“dot11RSNStatsTKIPReplays OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
DESCRIPTION: "Counts the number of TKIP replay errors detected."
::= {dot11RSNStatsEntry 15}”

Second: Jesse Walker

Discussion:

POI: What are the changes to the motion?

Comment: Can someone send a single broadcast packet and shutdown the multicast channel?

Jesse: Yes.

Jesse: This is a less evil solution than allowing outsiders to be able to generate replay attacks.

Vote: 21-0-6 Passes

Main Motion by Jesse Walker:

In 8.3.2.4.4 add text

“A receiver shall discard any MPDU that is received out of order and shall increment the value of dot11RSNStatsTKIPReplays for this key”

and in 8.3.4.4.8 add text

“A receiver shall discard any MPDU that is received out of order and shall increment the value of dot11RSNStatsCCMPReplays for this key”

and add a MIB variable

“dot11RSNStatsTKIPReplays OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
DESCRIPTION: "Counts the number of TKIP replay errors detected."
::= {dot11RSNStatsEntry 15}”

Discussion:

None

Vote: 21-0-6 Passes

Motion by Jesse Walker

Replace the phrase “pairwise key” with “PTK” in clause 8.3.2.4.2.

Second: Nancy Cam-Winget

Discussion:

None

Vote: 24-0-0 Passes

Motion by Jesse Walker

In clause 8.4.10 replace “pairwise key” with “PTK”

Second: Tim Moore

Discussion:

None

Vote: 24-0-0 Passes

Motion by Jesse Walker

Add text to 8.5.1.3

“The Authenticator shall produce GTKs by a technique that guarantees that each GTK is indistinguishable from random.”

and change the existing method for generating the GTK from mandatory to an informative example. Change the name of clause 8.5.1.3 to “Group Temporal Key”.

Jesse: It’s not feasible for anyone to test this procedure.

Comment: If you can test it, the algorithm is broken.

Comment: Since the Gnonce is used derive the GTK, some changes to that text will be necessary as well.

Jesse: Do you have suggested text?

Comment: It affects other clauses as well.

Jesse: Motion withdrawn.

Chair: Any objection to recess until 3:30pm?

None

Recessed at 2:51pm

Resume 3:35pm

Motion by Jesse Walker:

Do not use the IV for wrapping the GTK. Instead, in clause 8.5.2 specify the following algorithm for the RC4 key wrap:

“To wrap the GTK for an RC4-based protocol, if l is the wrapped key length in octets, wrap the k -th key using bytes $256+(k-1) \times l$, $256+(k-1) \times l+1$, $256+(k-1) \times l+2$, ..., $256+(k-1) \times l+l-1$ of the RC4 key stream generated under the KEK, for $k = 1, 2, 3...$ Key stream byte $256+(k-1) \times l+j$, is used to RC4 encrypt byte j of the k th GTK, for $j = 0, 1, ..., l-1$. Here the EAPoL-Key Replay Counter k is the value used in the EAPoL-Key descriptor transporting the key.”

Second: John Kowalski

Discussion:

Comment: What is the motivation?

Jesse: To get rid of a construction that we know is flawed.

Comment: What we are doing is not a flawed construction.

Jesse: Even though half of the key is exposed?

Comment: Correct. It is stated on the RSA web site.

Vote: 3-15-8 Fails

Motion by Tim Moore (LB comment 1743)

Motion to change 5.9.3.1 Figure 5

“802.1X controlled port still blocked for client AID”

should read

“802.1X controlled port unblocked for client AID”.

Second: Clint Chaplin

Discussion:

None

Vote: 24-0-2 Passes

Motion by Tim Moore (LB comment 1745)

Motion to change 7.3.2.17 example 2 "no capabilities" to "pre-auth capability".

Second: Arnoud Zwimmer

Discussion:

None

Vote: 26-0-2 Passes

Motion by Tim Moore (LB comment 1755)

Motion to change 8.4.3 line 8

"STAs that fail to assert RSN"

to

"STAs that fail to include the RSN IE in the Associate or Re-associate Request frame"

Second: Onno Letanche

Discussion:

None

Vote: 27-0-0 Passes

Motion by Tim Moore (Comment 1756)

Motion to move 8.4.3 lines 20-26 to section 7.3.2.17 after line 13

Second: Jesse Walker

Discussion:

Jesse: We already state this in clause 7.3.2.17

Tim: So we have them in two places, and they are different.

Comment: What if a version is "cracked" - how do we eliminate it?

Tim: You must support it, but you simply don't turn it on.

Jesse: We should put the rules in one place.

Vote: 24-0-2 Passes

Motion by Tim Moore (Comment 1758)

Motion to change 8.5.1

"Group keys shall not use WEP key id 0."

to

"WEP key ID 0 shall only be used in a TSN and shall only be used only when the
"Pairwise key subfield" capability bit is 1.

Comment: What are the implications?

Jesse: The way text is now, if you try to use WEP with RSN key management, you can get yourself in trouble

Second: Arnoud Zwimmer

Discussion:

None

Vote: 23-0-2 Passes

Note: Tim Moore withdraws comments 1759 and 1762

When we are supporting legacy stations the WEP keys will be configured so there is no need for a PRF.

Motion by Tim Moore (Comment 1763)

Motion to change 8.5.2 to:

"Key Type (bit 3):
Key Index (bits 4 and 5):
Bit 6 is the Install flag.
 Key Type (bit 3)
 Key Type (bit 3)
Ack (bit 7):
MIC (bit 8):
Secure (bit 9):

Error (bit 10):
Request (bit 11):
Reserved (bits 12-15)."

Second: Dorothy Stanley

Discussion:

None

Vote: 23-0-3 Passes

Motion by Tim Moore (Comment 1760)

Motion to change 3rd paragraph in 8.5.1.2 to an informational note

Second: Nancy Cam-Winget

Vote: 27-0-0 Passes

Motion by Tim Moore

Motion to add after 8.5.2 page 93 line 12

"Key Descriptor Version 2 shall be used for all EAPOL-Key messages to and from a STA when either the Pairwise or the Group cipher is AES-CCMP."

Comment: So what if some supplicants are doing CCMP and some are doing TKIP?

Comment: What about when you update the group key?

Tim: You will be using AES.

Second: Andrew Khieu

Discussion:

None

Vote: 24-0-2 Passes

Submission: Nancy Cam-Winget – doc 03/047r0 – RSN IE provided in 3rd message

Motion by Nancy Cam-Winget (LB comment ?)

Instruct the editor to request new reason code from 802.11 ANA and add said code in Table 18 as:

"Cipher suite is rejected per security policy."

Second: Jesse Walker

Discussion:

None

Vote: 23-0-1 Passes

Motion by Nancy Cam-Winget (LB comment ?)

Change text in TGi Draft 3.0 Clause 8.5.3.3 from

“Key Data = included RSN IE – in a BSS, the AP’s Beacon/Probe RSN IE”

To

“Key Data = includes an RSN IE - in a BSS and optionally a 2nd, the first is the AP's Beacon/Probe RSN IE and an optional 2nd RSN IE shall be the AP's negotiated RSN IE where only a single unicast cipher suite is valid. The unicast cipher will be used by the Authenticator and the STA.”

Comment: Why is this necessary if we just approved the previous one?

Nancy: This is a way to avoid Disassociating and going through Association and Authentication again.

Comment: We could table this until tomorrow when we talk about roaming. The AP could force the STA to Re-associate with a different security policy.

Comment: But the AP’s don’t know the security policy on roam.

Comment: What problem are we trying to resolve? Is it simply a provisioning mistake?

Nancy: Yes

Comment: Then this seems to be an administrative problem.

Comment: The STA can allow the user to select an alternate security scheme.

Comment: We’re always including a 2nd IE just for this one potential provisioning error. Can we make it optional?

Jesse: I think this addresses a real problem. This is necessary, but perhaps we should make it optional.

Comment: Changing the multicast cipher suite doesn’t make sense - only the unicast.

Comment: Perhaps the way to do this is to create a new IE.

Nancy: Is there an objection to add 4 bytes to the existing IE for this?

Nancy: Should we indicate that only the unicast cipher suite is included the 2nd IE?

Comment: Yes

Text needs to be added to both 8.5.2 and 8.5.3.3 to address this issue. Nancy will re-craft motion for tonight’s session.

Motion by Paul Lambert

Move that the editor make normative changes to the text and figures of the IEEE 802.11 TGi D3.0 to document the following CCMP processing:

The “additional authentication data” of CCM shall consist of the 802.11 MAC header with:

- o The full MAC header modified by:
 - Setting the SubType b4 b5 b6 bits to zero
 - Setting the retry, PwrMgt, MoreData bits in the FC to zero
 - The Protected bit shall always be 1
 - Skipping the duration field

- If the QC field is present, the QC field is included in the additional authentication data with all bits of the QC except the QC-TID are set to zero.
- This additional authentication data includes A4 if A4 is present
- The additional authentication data does not include the CCMP PN field or the keyId/extIv field

Paul: This should not be any technical change from what we already agreed on. Errors were introduced with revised text in the draft.

Comment: Why setting the subtype bits b4, b5, b6 to zero?

Paul: Because they may change

Comment: Another way to define this is with canonical form rules.

Paul: Yes, but that would require large changes. This is step one towards that approach.

Comment: I support the idea, but not the structure.

Jesse: There are no specifics. It really implies a new block diagram.

Chair: Should we discuss over dinner?

Paul: I'll present again tomorrow using canonical figures. This will replace much of the existing text.

Comment: It seems the sequence number should be muted as well.

Paul: I tried to get that passed in a previous meeting, but failed. There are security issues with doing this.

Chair: After dinner we can resume letter ballot comment processing if there are no further motions. We need to decide if we want to break up into groups to process them.

Recessed at 5:31pm until 7:00pm

Resume 6:14pm

Chair: Who has motions ready?

- Tim Moore

Motion by Tim Moore: (LB comments 1765 1768 1769 1770 1771 1772 1773 1774)

Document 11-02-646 was included incorrectly - AES key descriptor is incorrect in various places in clause 8.5.2.

Under “Key Information”, change bullet two of “Key Description Version Number” from:

“2. Type 2 indicates.

- b) AES-CBC-MAC is the EAPOL-Key MIC;
- b) HMAC-SHA1 is the EAPOL-Key encryption algorithm used to protect the distributed GTK. HMAC is defined in RFC 2104, and SHA1 by FIPS-180-1. The output of the HMAC-SHA1 shall be truncated to 128-bits.”

To:

“2. Type 2 indicates.

- b) HMAC-SHA1 is the EAPOL-Key MIC. HMAC is defined in RFC 2104, and SHA1 by FIPS-180-1. The output of the HMAC-SHA1 shall be truncated to 128-bits.

- b) AES-Wrap is the EAPOL-Key encryption algorithm used to protect the distributed GTK defined in RFC3394”

Under “**Key MIC**”, change

“**Key Descriptor Version 2:** HMAC-MD5.”

To

“**Key Descriptor Version 2:** HMAC-SHA1.”

In clauses 8.5.3.1, 8.5.3.2, 8.5.3.3, 8.5.3.4, 8.5.4.1, 8.5.4.2

“Version = 1 (RC4 encryption with HMAC-MD5) or 2 (AES-128-CBC encryption with AES-128-CBC-MAC)”

to:

“Version = 1 (RC4 encryption with HMAC-MD5) or 2 (AES-Wrap encryption with HMAC-SHA1)”

Comment: Can this be summarized as “allow a FIPS allowable suite?”

Tim: Yes

Second: Don Eastlake

Discussion:

None

Vote: 17-0-5 Passes

Submission: Nancy Cam-Winget – doc 03/047r1 – TGi Motions

Motion by Nancy Cam-Winget: (LB comments ???)

Insert after 1st sentence in 4th paragraph of Key Data description in Clause 8.5.2:

“Optionally, the Authenticator may also insert a 2nd RSNIE. The 2nd RSN IE indicates the unicast cipher suite the Authenticator shall use with the STA. This is used when the Authenticator requires the Supplicant to use a different unicast cipher and must be one of the ciphers advertised by the Authenticator. All other fields in the 2nd RSN IE must be identical to the 1st RSN IE.”

Change Key Data description in Clause 8.5.3.3 to

“Key Data = the AP's Beacon/Probe RSN IE and an optional 2nd RSN IE that is the Authenticator's unicast cipher suite assignment”

Insert a new item (as item #3) in Clause 8.5.3.3

“If a 2nd RSN IE is provided in the message, the Supplicant shall apply the information specified in the 2nd RSN IE, or disassociate.”

Append to the KeyIdentifier table of Clause 10.3.11.1.2 the following entry:

Cipher Suite selector	Integer	As defined in RSN IE format	The Cipher Suite required for this association
-----------------------	---------	--------------------------------	---

Comment: The second RSN IE only includes the unicast cipher suite?

Nancy: Yes

Comment: Isn't the multicast field required?

Nancy: Yes. [text changed to indicate this is a truncated RSN IE]

Comment: Why not include a full RSN IE for the 2nd RSN IE?

Nancy: That is where the motion started.

Second: Jesse Walker

Discussion:

None

Vote: 19-0-5 Passes

Motion by Tim Moore: (LB comments 1803 1804 1864)

Tim: The reference code for passphrase is incorrect

Motion to change first hmac_sha1

```
"hmac_sha1((unsigned char *)password, (int)strlen(password), digest, ssidlength+4, digest1);"
```

to

```
"hmac_sha1(digest, ssidlength+4, (unsigned char *)password, (int)strlen(password), digest1);"
```

and change 2nd hmac_sha1

```
"hmac_sha1((unsigned char *)password, (int)strlen(password), digest1, A_SHA_DIGEST_LEN, digest);"
```

to

```
"hmac_sha1(digest1, A_SHA_DIGEST_LEN, (unsigned char *)password, (int)strlen(password), digest);"
```

and correct the test vectors to

```
"Password=password" SSID="IEEE" SSIDLength=4
f42c6fc52df0ebef9ebb4b90b38a5f902e83fe1b135a70e23aed762e9710a12e
```

```
Password="ThisIsAPassword" SSID="ThisIsASSID" SSIDLength=11
0dc0d6eb90555ed6419756b9a15ec3e3209b63df707dd508d14581f8982721af
```

```
Password="aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa"
```

```
SSID="ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ" SSIDLength=32  
becb9386bb8c3832cb777c2f559807c8c59afcb6eae734885001300a981cc62"
```

Second: Paul Lambert

Discussion:

Comment: PKCS#5 ...

Vote: 24-0-2 Passes

Chair: Are there any further motions?

None

Chair: Agenda review. Do we want to split up into groups to process the LB comments? We will probably want to meet in February to work on this.

Comment: Where?

Chair: Not sure yet.

Comment: We should talk about location because that will influence participation.

Chair: Who is interested in hosting?

Comment: Are there any other Task Groups meeting in February that we could join?

Chair: TGe was talking about having one.

Comment: How many people typically show up?

Chair: About 30.

Chair: How long? Herndon was 3 days. San Jose was 3 days. Santa Barbara was 2 days. Akron was 2 days.

Comment: We will need at least 3 days for this.

Chair: Some people won't be able to attend if we make it too long.

Chair: Volunteers? Jesse Walker (Intel – Portland), Tim Moore (Microsoft – Seattle), Al Potter (ICSA – Herndon, Atlanta), Don Easton (Mansfield, Mass.),

Chair: FYI - TGe is meeting in Portland so we could co-locate.

Straw Poll

The TGi February 2003 meeting should be in the following location (multiple votes):

Intel – Portland 16

Microsoft – Seattle 17

ICSA – Herndon 15

ICSA – Atlanta 3

Motorola - Mansfield, Massachusetts 11

Comment: I suggest that we vote again during the day tomorrow – there seems to be more people attending then.

Straw Poll

The TGi February 2003 meeting should be in the following location (single vote):

Intel – Portland 7

Microsoft – Seattle 7

ICSA – Herndon 11

Groups for LB52 comment processing:

1. Clauses 2, 3, 4, 7, Appendix A (Dave Halasz)
2. Clauses 5, 10, 11 (Dorothy Stanley)
3. Clause 8, Annex F - CCMP (Paul Lambert)
4. Clause 8, Annex F - TKIP (Tim Moore)
5. Clause 8, Annex F - Other (Jesse Walker)

Comment: For TGe LB processing, they ended up creating 5 or 6 groups that ran 3 at a time in order to have critical mass.

Chair: The best dates for the February meeting would be the February 19, 20, 21st due to the 30 day requirement, prior commitments for the following week and the early March 802.11 meeting.

ICSA has conflicts with these dates.

Straw Poll

The TGi February 2003 meeting should be in the following location (single vote):

Intel – Portland 4

Microsoft – Seattle 15

Motorola - Mansfield, Massachusetts 7

Chair: The February meeting shall be in Seattle.

Chair: If TGf is not going to meet on Thursday 10:30am to 12:00pm slot, we will ask for their time slot.

Chair: any objection to us operating in an ad-hoc until tomorrow morning?

None

Chair: We shall break-up into groups for LB processing for the remainder of this evening's session.

Wednesday, January 15, 2003

8:00am

Submission: Dan Harkins – doc 03/095 - Fast Re-authentication

Submission: Bill Arbaugh – doc 03/084 - Proactive Key Distribution to support fast and secure roaming

Submission: Nancy Cam-Winget – doc 03/008 - Proposed new AKM for Fast Roaming

Thursday, January 16, 2003

8:00am

General Submissions:

Bob Moskowitz 03/079

Mat Fischer (Tge) – ordering of byte in IV

Fujio Watanabe – PreAuth

Marty Lefkowitz 03/684, 03/686

Submission – Bob Moskowitz – doc 03/079r0 “802.1X/EAP state machine status work in progress”

(slide 5)

Jesse: These changes make the existing TGi draft be non-conformant. What do we do, reference the old 802.1X draft?

Bob: I’ll discuss that later.

(slide 8)

Comment: In TGi we have the control port switch at both the Supplicant and Authenticator

Comment: No, we don’t

(slide 9)

Comment: What does the keyAvail mean?

Bob: The EAP method has generated the key

Comment: We now need to change all the EAP methods to generate a key.

Bob: I’ll take that comment to the design team.

(slide 10)

Comment: The original 802.1X spec did not have a way to know that it was done, but the current draft does.

(slide 11)

Comment: How does one know when keying material is available from the method? Also, how do you know the method has proceeded far enough that it is safe to use the keying material?

Bob: There should be a signaling from the method. That is the next natural step in the evolution of EAP.

Comment: Does this open you up to the compound authentication binding attack?

Bob: You may chain methods, but key material is only at the end. There are some risks.

Comment: The signal is to state that the method is protected, not the link.

Bob: Right

(slide 12)

Bob: Changes in 802.1aa result in changes in 802.11i.

Comment: We asked for some flags (portSecured) in 802.1aa so we could move keys around. Is that there?

Bob: It was in 4.1 and has not been take out.

Comment: It would be disaster to have 802.11i reference a dated 802.1x standard.

Jesse: What is the timeframe for completion of 802.1aa and RFC 2284bis?

Bob: 802.1aa is going to re-circulation ballot. The goal is to finish RFC 2284bis for the San Francisco IETF.

Chair: 802.1x is a standard, and 802.1aa is a maintenance to that.

Comment: It would be better to have 802.11i and 802.1aa synchronized in their release.

Comment: We're going with 802.1aa anyway because we need some of the changes in it.

Bob: I will take these comments back to the 802.1aa design team.

Jesse: The editor would like guidance as to which normative reference to use.

Chair: We can't reference 802.1aa

Jesse: But we are using 802.1aa already. If we do reference 802.1aa, we're in violation. If we don't we're in violation.

Chair: It's premature to worry about it. If 802.1aa finishes before we do, it won't be a problem. If vice-versa, put the text from 802.1aa in our draft and remove the reference.

Submission: Fujio Watanabe – doc 03/097r1 – Connectivity Problems

Comment: Is more than one Handoff Key used for all APs?

Fujio: No, a single key is used.

Comment: What parameters are use to ensure that voice only traffic is passed during the handoff period?

Fujio: We haven't defined this yet.

Submission: Marty Lefkowitz 03/684r2 – Extended Keymap ID

Comment: I agree for the decryption, having these extra bits is benign. But how does the AP know if a STA supports the extended ID space?

Marty: I added a MIB variable. Also, the keys are being set by the AS. And this is mainly for multicast. If the STA doesn't support the ext key ID, it will fail to decrypt.

Jesse: We don't want to expose the STA's MIB to an (potentially unknown) AP. We should put the negotiation of this in 802.11, not via something like SNMP.

Comment: If this goes in the spec, only the legacy STAs would experience a large amount of decryption errors.

Comment: I'm concerned about using all the reserved bits.

Marty: Yes, this might be an issue.

Comment: The AP will need storage for up to 2^{12} keys.

Chair: Do you plan to make a motion?

Marty: I have text, but I would like to give people a chance to read it.

Comment: Is this for unicast and multicast?

Marty: It is meant for multicast, but there is no reason it couldn't be used for unicast.

Comment: Your pseudo-code is only for multicast.

Marty: Right, I would need to modify it for unicast.

Chair: That is the end of the general submissions. I would like to start a queue for people who have motions. I would like to time this such that we are done around Noon so that we could resume LB52 comment processing after lunch.

Comment: I would like to have a discussion on some of the LB comment processing.

Chair: Is there any objection to having a TGt meeting on February 19, 20, 21 in Seattle?

None

Motion by Tim Moore: (LB comment 23)

In Clause 8.3.2.1, delete

“TKIP surrounds WEP with new algorithms”

Second: Clint Chaplin

Motion to amend by Tom Maufer

In Clause 8.3.2.1, replace

“TKIP surrounds WEP with new algorithms:”

with

“TKIP modifies WEP as follows:”

Second: Nancy Cam-Winget

Discussion:

None

Vote: 29-0-0 Passes

Main Motion by Tim Moore (LB comment 23)

In Clause 8.3.2.1, replace

“TKIP surrounds WEP with new algorithms:”

with

“TKIP modifies WEP as follows:”

Discussion:

None

Vote: 30-0-1 Passes

Motion by Tim Moore: (LB comments 1247 952 958 1146(partial) 1274)

In Clause 8.3.2.1 page 35 line 6, add ", priority" after addresses.

In Clause 8.3.2.1.1 page 35 figure 12 add "+" after “priority”.

In Clause 8.3.2.4.1 page 41 line 6 add ", priority" after destination address.

Second: Andrew Khiau

Discussion:

None

Vote: 24-0-4 Passes

Motion by Tim Moore: (LB comment 1515)

In Clause 8.3.2.1 bullet 2 replace

"taking care that all the MPDUs generated from the same MSDU use counter values from the same 16-bit counter space."

with:

"taking care that all the MPDUs generated from the same MSDU use counter values from the same 48-bit counter space."

Second: Arnoud Zwimmer

Comment: The clause number should be 8.3.2.1.1, not 8.3.2.1.

Motion to amend by Onno Letanche

In Clause 8.3.2.1.1 bullet 2 replace

"taking care that all the MPDUs generated from the same MSDU use counter values from the same 16-bit counter space."

with:

"taking care that all the MPDUs generated from the same MSDU use counter values from the same 48-bit counter space."

Second: Tim Moore

Discussion:

None

Chair: Any objection to the motion to amend?

None?

Motion passes

Main Motion by Tim Moore

In Clause 8.3.2.1.1 bullet 2 replace

"taking care that all the MPDUs generated from the same MSDU use counter values from the same 16-bit counter space."

with:

"taking care that all the MPDUs generated from the same MSDU use counter values from the same 48-bit counter space."

Discussion:

None

Chair: Any objection to the motion?

None?

Motion passes

Chair: Recessed until 10:30am

Resume 10:34am

[Chair temporarily handed over to Dorothy Stanley]

Submission: Jie Liang – doc 03/xxx – Simplifying Implementation of CCMP Mode

Discussion:

Comment: What do you mean sequential PNs?

Jie: Increased by one.

Comment: What about retries?

Jie: The sequence number and PN will not change.

Jesse: Each key will have it's own PN space.

Comment: I submitted this same issue 3 or 4 months ago. This is especially a problem with QoS queues. This will improve latency times.

Jesse: Now we have an analysis of the problem. If this covers all cases, let's do it.

Comment: I think it is critical to have this. If trying to encrypt in s/w, you can't do it without this. However, if you do this, you can't fragment in hardware. Even if a fragment attack succeeded, the IP checksum would fail.

Jesse: Did you consider deleting fragments?

Comment: You can't change the fragment number, so reassembly would fail.

Chair: Further discussion?

None

Recessed in ad-hoc to work on LB52 comments until 1:00pm

Recess for lunch

Resume 1:00pm

Submission: Paul Lambert – doc 03/xxxr0 – CCMP Reorganization

Discussion:

Comment: When you say the NIST CCM document, do you mean the PDF file on their web site?

Paul: Yes.

Comment: You're okay with referencing that even though it is not an approved standard?

Paul: Yes, it is a publicly available published document.

The motion is in doc 03/118r1. The document has not been on the server long enough to make a motion. Paul will find someone to make the motion for him later today since he will not be here.

Comment: You need to be careful about replacing complete sections on a re-circulation ballot.

Paul: You are correct.

Chair: When we go to re-circulation, we will have the changes marked in the draft.

Chair: Are all the comments you addressed in your motion?

Paul: Onno has another list.

Comment: Do you need to know if they were accepted or rejected by the motion?

Chair: I need a list to update the comments database.

Motion by Jie Liang

Instruct the editor to make the following changes:

In clause 8.3.4.4.3, page 60, line 34, replace:

“SC – MPDU Sequence Control.”

with:

“SC – MPDU Sequence Control, with sequence number field masked to zero”

In Clause 8.3.4.4.8, page 67, add the following sentence to the end of Line 8:

“Packet Number (PN) values for all fragments of the same MSDU shall be sequential”.

To change CCMP test vectors accordingly.

Second: Yeong Chang

Discussion:

Comment: I thought you only masked off the sequence, not the fragment, but your motion appears to mask the fragment number as well.

Jie: No, only the sequence number.

Comment: I would like to make sure that a change at this point has had security review. I talked to Russ and he is okay with it. I would like to get Jesse's comments.

Jie: I talked to many people, including Russ, and they are ok with it.

Jesse: It appears that this has the right properties to address the concerns that I had. The presentation included the analysis I was looking for.

Jesse: We need to update the PICS accordingly.

Chair: The PICS is more of just a check-list of what has been implemented.

Jesse: The receive requirements needs to be made explicit in the PICS.

Comment: I feel we need to provide detail here, but not in the PICS.

Comment: If we table this motion until after Paul's, we can then amend this to match what is in Paul's motion.

Comment: The other solution is to simply amend saying what we are trying to achieve without specific text.

Motion to amend by Jesse Walker

Instruct the editor to make the following changes:

In clause 8.3.4.4.3, page 60, line 34, replace:

“SC – MPDU Sequence Control.”

with:

“SC – MPDU Sequence Control, with sequence number field masked to zero”

In Clause 8.3.4.4.8, page 67, add the following sentence to the end of Line 8:

“The receiver shall discard MSDUs whose constituent MPDU PN values are not sequential”

To change CCMP test vectors accordingly.

Second: Thomas Maufer

Discussion:

None

Vote: 32-0-0

Main motion by Jie Liang

Instruct the editor to make the following changes:

In clause 8.3.4.4.3, page 60, line 34, replace:

“SC – MPDU Sequence Control.”

with:

“SC – MPDU Sequence Control, with sequence number field masked to zero”

In Clause 8.3.4.4.8, page 67, add the following sentence to the end of Line 8:

“The receiver shall discard MSDUs whose constituent MPDU PN values are not sequential”

To change CCMP test vectors accordingly.

Discussion on Main Motion

Comment: Why not wait until after Paul's motion before voting on this?

Jie: We already had this discussion.

Call the question

Chair: Any objection?

Yes

Vote on calling the question: 24-2-5 Passes

Vote on Main Motion: 33-0-2 Passes

Comment 25 rejected – this is a statement about possible spanning, not about inclusion of the MIC.

Motion by Tim Moore (LB comment 1143)

In clause 8.3.2.2, change

"TKIP shall encrypt all the MPDUs generated from one MSDU under the same key"

to:

"TKIP shall encrypt all the MPDUs generated from one MSDU under the same temporal key"

Second: Clint Chaplin

Discussion:

None

Chair: any objection?

None

Motion Passes

Motion by Tim Moore (LB comments 860)

In clause 8.3.2.4.1, add the following after line 17 (first paragraph)

"TKIP uses different MIC keys depending on the direction of the transfer as described in clauses 8.6.1 and 8.6.2."

Second: Andrew Khiau

Discussion:

Comment: In the STA and AP, you don't use the same MIC key.

Tim: Then it won't work for IBSS.

Chair: Any objection?

None

Motion Passes**Motion by Tim Moore** (LB comments 1134 1146(partial))

In Clause 8.3.2.4.1, change

"Note the DA, SA and a one octet priority field and 3 octet reserved (0) field are used for calculating the MIC and are not transmitted. The priority field shall be 0 and reserved for future use for IEEE 802.11 traffic class."

to

"The DA, SA and a one octet priority field and 3 octet reserved (0) field are used for calculating the MIC and are not transmitted. The priority field shall be 0 and reserved for future use for IEEE 802.11 traffic class."

Second: Dorothy Stanley

Discussion:

None

Vote: 22-0-0 Passes**Motion by Tim Moore** (LB comment ???)

In clause 8.3.2.4.1 page 41 line 20, change "MPDU" to "MSDU".

Second: Onno Letanche

Discussion:

None

Vote: 21-0-2 Passes**Motion by Tim Moore** (LB comments 1401 1435 236)

In Clause 8.3.2.4.1, page 40, add after line 17:

"Informational note: The MIC calculation includes the priority field from the MA-UNITDATA Request."

Comment: There is no numerical value for Contention Free Vs. Contention?

Tim: TGe defines them, but we can't reference them in our draft.

Comment: I object to including Contention Free in there as it interferes with the CCM process. We could resolve the comment by stating that the mapping is defined in TGe.

Comment: Why don't we put in something that states Contention is this number, and Contention Free is this number and then synchronize the two when TGe is finished?

Comment: There was no need to define these fields until TGi.

Second: Thomas Maufer

Discussion

None

Chair: Any objection?

Yes

Vote: 17-2-5 Passes

Motion by Tim Moore (LB comments 862, 966, 1248, 1270, 1326, 1614, 1747, 1857, 1249, 1751, 863, 1749)

In Clause 8.3.2.4.3 change

"first 80 bits"

to

" all 128 bits"

In Clause 8.3.2.4.3, change

"Only the last 24 bits of TK are used in Phase 2"

to

"The TK is 128 bits."

In Clause 8.3.2.4.3, change

"TK0..TK12"

to

"TK0..TK15"

Second: Butch Anton

Discussion:

None

Any Objection?

None

Motion Passes

Motion by Tim Moore (LB comments 1754 1402 249)

In Clause 8.3.2.4.4, add bullet 8

"The recipient shall maintain a separate replay counter for each IEEE 802.11 Traffic Class, and shall use the TSC recovered from a received frame to detect replayed frames. A replayed frame occurs when the TSC extracted from a received frame is repeated or not greater than the current Traffic Class replay counter value for the frame's traffic

class. The separate replay counters per traffic class accommodates frames that may be delayed due to traffic class priority values.”

Comment: It seems like we are accommodating TGe in TKIP, but not in any other parts of the spec.

Chair: We don't want to inhibit them.

Second: Arnoud Zwimmer

Discussion:

Any objection?

None

Motion Passes

Motion by Tim Moore (LB comments 1707 1163 971 44 236)

In Clause 8.3.2.4.4, delete bullet 7

Second: Dorothy Stanley

Discussion:

None

Any Objection?

None

Motion Passes

Motion by Tim Moore (LB comment 1564)

In Clause 8.3.2.4.4, change

"replay window"

to

"replay counter"

Second: Clint Chaplin

Discussion:

None

Any objection?

None

Motion Passes

Motion by Tim Moore (LB comment ???)*In Clause 8.3.2.4.1, change diagram*

DA	SA	Priority	0	Data	MIC
----	----	----------	---	------	-----

To:

DA	SA	Priority	0	Data	MIC
6	6	1	3	N	8 Octets

Second: Clint Chaplin

Discussion:

None

Any objection?

None

Motion Passes**Motion by Tim Moore** (LB comment ???)*In Clause 8.3.2.1, change*

"on the host"

to

"higher up in the MAC"

Second: Thomas Maufer

Discussion:

None

Any objection?

None

Motion Passes**Motion by Tim Moore** (LB comment 1144 1519)*In Clause, 8.3.2.3, delete section 8.3.2.3**Add to 8.3.2.1 after line 21*

"TKIP defines additional MIB variables, see Annex D."

Second: Arnoud Zwimmer

Discussion:

None

Any objection?

None

Motion Passes

Motion by Tim Moore (LB comment 31)

In clause 8.3.2.4.1 Figure 15, move dotted line to half-way up the MSDU box.

Second: Jesse Walker

Discussion:

None

Any objection

None

Motion Passes

Motion by Tim Moore (LB comment 112)

In Clause 8.3.2.4.1, delete

"with a design goal of 20 bits of security"

Second: Russ Housley

Discussion:

None

Any objection

None

Motion Passes

Motion by Tim Moore (LB comment 1145)

In clause 8.3.2.4.1, change:

"STA can masquerade as any other STA belonging to the group. Hence, the protection afforded by the TKIP MIC is directly affected by the local keying policy; group keys should be avoided."

To:

"STA can masquerade as any other STA belonging to the group."

Second: Russ Housley

Discussion:

None

Any objection?

None

Motion Passes

Motion by Tim Moore (LB comment 1891)

In Clause 8.3.2.4.2, move to 9.2.7

"An AP shall drop any data broadcast/multicast MSDU received from a non-AP STA."

Tim: for security reasons we have to say "and drop packets"

Motion withdrawn

Motion by Tim Moore (LB comments 29 1141 1465 1861(part)

In Clause 8.3.2.2, add after line "RC4Key[0] = TSC0 and RC4Key[2] = TSC1."

"RC4Key[1] is not used to construct the TSC."

Second: Russ Housley

Discussion;

None

Any objection

None

Motion Passes

Discussion on comments.

LB52 Comment #?

Tim: The comment asks for a MIB object to adjust the TKIP countermeasures. For security measures we did not include this.

Comment: We could add it but make the minimum 60 secs.

Tim: What's the point? You know they want the object to decrease it from 60.

Comment rejected.

Motion by Tim Moore (LB comment 34)

In Clause 8.3.2.4.1 page 40, change:

"If the MIC validation succeeds, the MAC delivers the MSDU to the appropriate IEEE 802 SAP via the MA-UNITDATA.indication primitive. If the MIC validation fails, the MAC discards the MSDU, increments a counter, and invokes counter-measures."

To:

"If the MIC validation succeeds, the MSDU is delivered; otherwise the MSDU is discarded, increments a counter, and invokes countermeasures."

Second: Jesse Walker

Discussion:

None

Any objection?

None

Motion Passes

LB52 Comment #?

Start TSC at value other than zero to minimize storage requirements.

Comment rejected since a counter is needed anyway.

LB52 Comment #?

Affect of MSDU/MPDU extension on MTU

Tim will work with Jesse to see if any text needs to be changed.

Motion by Jesse Walker

Replace reference TKIP implementation in Annex F.1 with reference TKIP implementation from document 02/282 (provided by Doug Whiting).

Second: Russ Housley

Discussion:

None

Any objections?

None

Motion Passes

Motion by Jesse Walker

Insert after 1st sentence in 4th paragraph of Key Data description in Clause 8.5.2:

“Optionally, the Authenticator may also insert a 2nd RSNIE. The 2nd RSN IE indicates the unicast and multicast cipher suite the Authenticator shall use with the STA. This is used when the Authenticator requires the Supplicant to use a different unicast or multicast cipher and must be one of the ciphers advertised by the Authenticator. All other fields in the 2nd RSN IE must be identical to the 1st RSN IE.”

Change Key Data description in Clause 8.5.3.3 to

“Key Data = the AP's Beacon/Probe RSN IE and an optional 2nd RSN IE that is the Authenticator's unicast and multicast cipher suite assignment”

Second: Dorothy Stanley

Discussion:

Comment: In the AP's negotiation for security policy in the 3rd message, it is both unicast and multicast cipher that can change. So we need to clean up the language passed in previous a motion.

Comment: Perhaps we need to go to having multiple multicast cipher suites in the beacon in order to support this.

Comment: I don't see how it would help, the STA will pick one, and the AP will say use another, but the STA doesn't support it.

Comment: For: We should give the vendors the tools to do what they need.

Vote: 8-8-6 Fails

Motion by Dorothy Stanley (LB comments 4, 312, 904, 1677)

In Clause 5.1.1.4, replace:

A **Robust Security Network** (RSN) depends upon IEEE 802.1X to deliver its authentication and key management services. All STAs and APs in an RSN contain an IEEE 802.1X entity that handles many of these services. This document defines how an RSN utilizes IEEE 802.1X to access these services.

A *Transition Security Network* (TSN) is an RSN that also supports unmodified pre-RSN equipment. A TSN is defined only to facilitate migration to an RSN. A TSN is insecure, since the pre-RSN equipment can compromise the larger network.

with:

A **Robust Security Network** (RSN) depends upon IEEE 802.1X to transport its authentication services and to deliver key management services. All STAs and APs in an RSN contain an IEEE 802.1X entity that handles these services. This document defines how an RSN utilizes IEEE 802.1X to access these services.

Second: Clint Chaplin

Discussion:

None

Any objections?

None

Motion Passes

Motion by Dorothy Stanley (LB comments 313, 5, 1676, 255)

In Clause 5.1.1.5, replace:

An RSN utilizes non-802 protocols for its authentication and key management services. These protocols are defined by other standards organizations, such as the IETF.

with:

An RSN uses non-802 protocols for its authentication and key management services. Some of these protocols are defined by standards organizations, such as the IETF.

Second:

Discussion:

None

Any objection?

None

Motion Passes

Motion by Dorothy Stanley (LB comments 314, 315, 316, 317, 318, 319, 320, 905, 906, 1093, 1194, 1205, 1236, 1498, 1678, 1679, 1998, 849, 321, 907, 1094)

Replace text in Clause 5.2.2.2 with:

5.2.2.2 The Robust Security Network

A Robust Security Network adds a number of security features to the IEEE 802.11-1999 architecture. These features include:

- enhanced authentication mechanisms for both APs and STAs;
- key management algorithms;
- cryptographic key establishment; and
- enhanced data encapsulation mechanism, called CCMP and, optionally, TKIP.

An RSN comprises several components in the IEEE 802.11 architecture.

The first component is an **IEEE 802.1X Port**. IEEE 802.1X Ports are present on all STAs in an RSN. They reside above the IEEE 802.11 fragmentation and reassembly layer, and all data traffic that flows through the RSN MAC also passes through the IEEE 802.1X Port. The IEEE 802.1X specification describes the internal structure of the IEEE 802.1X Port.

A second component is the **Authentication Server** (AS). The AS is an entity residing in the DS that participates in the authentication of all STAs (including APs) in the ESS. It may authenticate the elements of the RSN itself—i.e., the STAs and APs—or it may provide material that the RSN elements can use to authenticate each other. The AS communicates with the 802.1X supplicant on each STA, enabling the STA to be authenticated to the AS and *vice versa*. RSN depends upon the use of an EAP method that supports Mutual authentication of the AS and the STA. In certain applications, the AS may be integrated into the same physical device as the AP.

Second: Jesse Walker

Discussion:

None

Any objection?

None

Motion Passes

Motion by Dorothy Stanley (LB comments 323, 324, 1095, 1096, 1681, 1727, 1818)

Replace the paragraph in Clause 5.4.2.3 with:

As in the case of Association, an AP in an RSN maps a Reassociation to an IEEE 802.1X Port. Although the IEEE 802.1X Ports on the STA and AP allow IEEE 802.1X protocol frames to traverse the link, they block general data traffic over the link until authentication completes successfully.

Second: Fred Haisch

Discussion:

None

Any objection?

None

Motion Passes

Motion by Dorothy Stanley (LB comment 908)

Replace the paragraph in Clause 5.4.2.4 with:

Informative Note: Disassociation can terminate an in-progress IEEE 802.1X authentication attempt, as disassociation makes the AP unreachable to the STA and *vice versa*.

Second: Russ Housley

Discussion:

None

Any objection?

None

Motion Passes

Motion by Dorothy Stanley (LB comments 176, 325, 809, 1097, 1317, 1335, 1390, 1432, 1476, 1539, 1682)

Remove the following lines 5 through 9 on page 7 Clause 5.4.3

“Change the sentence of the first paragraph of clause “5.4.3 Access and confidentiality control services” from:

Two services are required for IEEE 802.11 to provide functionality equivalent to that which is inherent to wired LANS.

to:”

Second: Clint Chaplin

Discussion:

None

Any objection?

None

Motion Passes

Motion by Dorothy Stanley:

Replace editing instructions for the second paragraph of clause “5.4.3 Access and confidentiality control services” with the following:

Change the second paragraph of clause “5.4.3 Access and confidentiality control services” from:

Two services are provided to bring the IEEE 802.11 functionality in line with wired LAN assumptions: authentication and privacy. Authentication is used instead of the wired media physical connection. Privacy is used to provide the confidential aspects of closed wired media.

to:

In a pre-RSN WLAN, two services, authentication and privacy, are defined. Authentication is used instead of the wired media physical connection. WEP encryption was defined to provide the privacy aspects of closed wired media.

An RSN does not directly provide either of these two services. Instead, an RSN uses the IEEE 802.1X-provided authentication service along with TKIP and CCMP to provide access control. IEEE 802.1X provides key management. Confidentiality is provided by 802.11 key management together with the TKIP and CCMP protocols.

Second: Jesse Walker

Discussion

None

Any objections?

None

Motion Passed

Letter Ballot 52 Comments to Discuss:

219 – Requesting global replace “Robust” with “Enhanced”

Comment rejected

1951 – Allow multiple simultaneous associations

Comment: This may ultimately be a solution, but we should tell the commenter to take this to TGe.

Comment: The model allows multiple authentications and a single association, we should follow that model.

Comment: Based on Bill Arbaugh's measurements, the delay is in locating the next AP.

Comment: Is fast roaming in our PAR?

Re-affirm that 5.9.3.1 is still needed – MANY comments - fair amount of work to re-do.

Comment: The diagrams are useful, however they have too much detail for the reader at this point in the document.

Chair: Any objection to recessing until 7:30pm?

None

Recessed at 5:32pm

Resume 7:34pm

Chair: Any objection to the chair taking a picture?

None

Chair: There was a meeting at NIST in December to discuss what they are looking for. We need a liaison between 802.11i and the IETF. Dorothy has volunteered to take this position. Bernard Aboba is the IETF EAP WG chair.

Chair: The people following have motions:

Paul Lambert

Dorothy Stanley

Mike Moreton

Motion by Dorothy Stanley

Instruct the editor to delete Clause 5.9.3.1 from 802.11i D3.0

Comment: Should any of this be harvested for use somewhere else in the draft?

Dorothy: Draft 3.0 will be available for reference.

Comment: Will pieces of this clause be moved elsewhere in the draft?

Dorothy: No, not without a motion to add it.

Comment: Unless it addresses some comments, why take it out?

Dorothy: There are about 100 comments related to this clause.

Comment: Is there any other text in clause 5 that states that we use Open 802.11 Auth and then an upper layer auth?

Dorothy: Yes

Jesse: There is too much detail for an overview. It's appropriate to replace it with something at a higher level to help understand the concepts.

Chair: The "right level" is subjective.

Comment: The description in Clause 8 goes into much more detail.

Comment: We may be able to fold some of this into the previous clause.

Comment: The previous clause is 802.1x, this shows how 802.11 uses 802.1x.

Second: Onno Letanche

Discussion:

None

Vote: 8-7-6 Fails

Motion by Paul Lambert

Instruct editor to replace clause 8.3.4 in TGi D3.0 with the text in 11-03-118r1. The editor should also make the following changes to this text:

Change Line 34, Page 60 (Clause 8.3.4.4.3),

"SC - MPDU Sequence Control."

To:

"SC - MPDU Sequence Control, with sequence number field masked to zero"

Add the following sentence to the end of Line 8, Page 67 (Clause 8.3.4.4.8):

"The receiver shall discard MSDUs whose constituent MPDU PN values are not sequential"

Change the CCMP test vectors accordingly

Second: Jesse Walker

Discussion:

Comment: Who is going to update the CCMP vectors?

Paul: I just did it.

Jesse: So there will be another motion to update the test vectors?

Paul: Yes

Jesse: Do we need the last bullet?

Paul: No

Paul: The test vectors are in doc 03/131r1

Vote: 20-0-0 Passes

Motion by Paul Lambert

Instruct the editor to replace the TKIP and CCMP Test Vectors in Annex F of the TGi draft with the Test Vectors from document 03/131r1.

Second: Jesse Walker

Discussion:

None

Vote: 19-0-0 Passes

Submission: Mike Moreton – doc 03/072r0 – Security Network Definition

Comment: Is it dangerous to introduce a term for the existing entity of pre-RSN Network?

Mike: A term describing that is used throughout the document.

Mike: Talking with Jesse, it was decided to wait for the next draft to introduce these new terms.

Motion by Mike Moreton

The TG1 task group requests that Mike Moreton submit, for their consideration, proposed draft changes that incorporate the new definitions described in document 11-03-072r0.

Discussion:

Mike: Some of these terms are new definitions. I needed to create them in order to have the document make sense.

Comment: Is WEP really pre-security? It may be more confusing to imply this.

Comment: RSN isn't mandatory, therefore CCMP is not mandatory.

Jesse: In an RSN, CCMP and TKIP are allowed, but not WEP. TSN allows WEP, TKIP and CCMP.

Comment: Are we hindering innovation?

Comment: We have the opportunity to set the direction that the products can be marketed by defining items in the standard.

Jesse: This is an industry that wants it both ways.

Mike: I planned to go through the draft and try to clarify all references to RSN.

Comment: Another method of a STA selecting a BSS that has the preferred security parameters is to scan other channels until it finds an AP it is compatible with.

Second: Russ Housley

Discussion:

Comment: Be aware there may be much debate on this when you make the actual motion.

Vote: 13-0-3 Passes

Submission: Gunnar Nitsche – doc 03/094r0 – Proposed text for Coding of RSN IE

Discussion:

Comment: You can actually parse the IE the way it is, but it is not easy.

Gunnar: I don't see how it can be decoded without these bits.

Chair: You use the length field.

Comment: Why is the RSN Capabilities Field at the end?

Chair: Because it is optional.

Gunnar: I am fine with the current IE format if some clarification can be supplied. I won't make the motion.

Chair: A reminder that there will be a TGi meeting in Seattle in Feb 19, 20, 21. Information will be distributed on the reflector.

Comment: Will voting be permitted at the meeting.?

Chair: No

Motion by Mike Moreton

In Clause 7.3.2.17, replace the following text

If the group cipher suite field is not supplied, then the pairwise key cipher suite and the authenticated key management suite fields shall not be supplied. If the group key cipher suite field is supplied but not the pairwise key suite field, then the authenticated key management suite field shall not be supplied.

With

If any optional field is absent, then none of the subsequent fields shall be included.

Note: This motion is to address a LB Comment from Gunnar Nitsche.

Second: Gunnar Nitsche

Discussion:

None

Vote: 15-0-1 Passes

Chair: Are there any further motions?

None

Chair: Any other discussion?

None

Chair: Any objection to adjourning for the week?

None

Adjourned for the week at 9:25pm

IEEE P802.11 Wireless LANs

Meeting Minutes for 802.11j January Interim, 2003

Date: January 12, 2003

Author: Peter Ecclesine
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Monday, January 12, 10:30AM session

Peter Ecclesine appointed Secretary for the Interim Session
Presented 02/736r3 Task Group j Agenda for the week. Modified to show the Thursday session begins at 8AM, continuing to noon.
Agenda Moved Sheung Li, Seconded Bruce Kraemer adopted unamously

Nominations to Chair Peter Ecclesine nominates Sheung Li adopted unamously
Nominations for Vice Chair none at this time
Nominations for Editor none at this time

Bruce Kraemer noted the Maintenance PAR is the forum for fixing existing text

Bruce K asked about the availability of the bands
Sheung Li answered that 5.0GHz is available today and some licensed basestations exist, but that 4.9GHz will be available around 2007. For client devices, you have to meet TELEC requirements, and at least one has already been certified.

Bruce K asked specific calls for contribution be put out for
2.5MHz offset for 5MHz channels
Channel numbering
4msec carrier sense rule
use of beacons with 5 MHz, 10MHz, 20MHz systems

Move to recess to Thursday 8AM
Sheung Li, second TK Tan adopted unamously

Thursday, January 15, 8AM

8:10 AM called to order
Peter Ecclesine nominates Yasuhiko Inoue as IEEE 802.11j liaison to MMAC Packet
Leo Monteban nominates Peter Ecclesine as Editor

Leo Monteban moves, Tomoko Adachi seconds to accept both nominations
Accepted unamously

03/111 Extending TGH Mechanisms to 4.9GHz and 5GHz Band in Japan Lior Ophir

Addressing the Supported Channel elements of 802.11h D3.0

03/114r1 Requirements for Alternate Channelization in TGj Sheung Li

AP and client have different transmit masks, spurious emission levels are relaxed. Editor to describe 'System Sharing' as defined in the rules. Notes ASTM E17.51 recommended 5.85-5.925 band operations have section on Blocker Performance for adjacent channels.

03/021 Preliminary Evaluation of Japan Band Issues Peter Ecclesine

03/115 candidate draft text

Motion to instruct editor to incorporate material from today's presentations (03/111, 03/114, 03/021) into candidate draft text

Leo moves, Lior seconds

Affirmative 12 Negative 1 Abstain 1

Bruce Kraemer moves to adjourn, Tomoko Adachi seconds

Unanimous assent

**IEEE P802.11
Wireless LANs**

TGk Consolidated Minutes for the January 2003 Session

Date: January 12 – 17, 2003

Author: Harry Worstell
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973-236-6915
hworstell@att.com

Monday, January 13, 2003 7:00pm – 9:30pm

Call to order

Review agenda and approved unanimously

1 Meeting Call to Order	Paine	0	7:00pm
2 Review IEEE 802&802.11 Patent Policies and Rules	Paine	10	7:00pm
3 Approve or Modify Agenda	Paine	10	7:10pm
4 Set/Review Objectives	Paine	10	7:20pm
5 Update on Teleconference Results	Paine	20	7:30pm
6 Selection of 802.11k Leadership	Paine	20	7:50pm
7 802.11h Tutorial	Black	80	8:10pm

Patent policy

The Chair reviewed the IEEE Patent Policy with the group.

Election of Secretary

Nomination for Harry Worstell

Moved by Bruce Kraemar

Second by Walter

Yes 18 No 0 Abstain 1

Election of Editor has been postponed until later in the week.

Call for papers

Presentation by Mike Morten

Proposed RRM Draft Skeleton

Boiler plate for the draft

What is the procedures ?

Papers and solutions presented

Normative text written for and voted into draft.

Comment:

- There I likely to be no single solution that will be available as a complete package.
- Need a structure as to what it is needs to be reported, do presentations and list those items that need to be measured. Then list how we need to measure each item and finally write the text for a draft.

- Need to focus on a scope and requirements document

Recess 9:31pm by unanimous vote

Tuesday, January 14, 2003 8:00-10:00AM

Call to order

Review and approval of agenda

1 Meeting Call to Order	Paine	0	8:00am
2 AT&T	Houle	20	8:00am
3 Measurement Mechanisms	Kaiser	30	8:20am
4 Specific Requirements	Johnson	10	8:50am
5 Vote on Editor	Paine	10	9:00am

approved unanimously

Presentations:

Joe Houle from AT&T Business Services Document 03/001

“A Service Provider View of QoS need for Hot Spots and Public Venues”

- Services not sold to public directly but thru ISPs.
- Devices now in enterprise space will be same in hot spots and public spaces
- Access network devices requires at least 5 years of useful economic life.
- Must have ability to remotely upgrade devices, reduce management overhead and increase utility
- Wi-Fi would undercut other more expensive solutions
- Hot spots and public venues must run with substantial loading to maximize return on capital
- These will require reporting of conditions of the wireless link
 - o Signal strength (AP and client)
 - o Error rate
 - o Loading
 - o Capabilities of the clients (QoS, Security.....)
- Will require mechanisms:
 - o client assisted handoff
 - o remote control of power and channel
 - o security for signalling and managed access
- Need to make available to service providers options for QoS and radio resource management as service rolls out

Daryl Kaiser from Cisco Systems Document 03/029

“New Radio Measurement Actions within the 802.11h Framework”

- WLAN network goals that requires measurement action
 - o Detecting rogue Aps
 - Plug security holes
 - o Quality of WLAN radio topology

- automatic frequency selection
 - AP/client power limits (do we need to include the antenna gain?)
- o Measure BSS overlap
 - balance coverage capacity and QoS
- o Quantify each station's local performance
 - admission control for QoS
 - facilitate roaming
 - load balancing
- o Detect non-802.11 interference and noise
- Proposed measurement actions (What is heard, how much, and who)
 - o Beacon reports
 - o Extended CCA report
 - o Non-802.11 RPI histogram report
 - o Frame report
- Paper defined how 802.11h defines an infrastructure for measurement requests and reports. Then it elaborates on how 802.11k could use the structure.
- Presented added measurements request element ID needed
- Some measurements would match TGh and TGk would define some new ones

Walt Johnson from Motorola Document 03/074

“Approach to move TGk Forward”

- Look at process
- form core group of ideas of what to solve
 - o VoIP
 - o Handoff
 - o EBSS vs. Ibss
- reduce ideas to basic measurements
- define measurements
- enable measurements
- a toolset to vendors

Election of editor

Move to elect Simon Barbar as editor

Motion J Kim

Second Stan Reible

Yes 16 NO 0 Abstain 0

Recess at 9:54 by unanimous vote

- - - - -

Tuesday, January 14, 2003 7:00 – 9:30pm

Move to amend the agenda to move the items 7 and 8 to 4 and 5

Tim Olson

Second Charles Wright

unanimous vote

1 Meeting Call to Order	Paine	0	7:00pm
2 Framework for RRM	Black	30	7:00pm
3 Handoff Timing Issues	Zhong	30	7:30pm
4 RRM Issues Document	Paine	30	8:00pm
5 RRM Vision and Architecture Document	Paine	30	8:30pm

Approved unanimously

Simon Black from Qosine Documents 03/080 & 03/080a

“A Framework for RRM”

- Objectives:
 - Starting point (Frame Work) for TGk
 - RRM – obtaining information and delivering it to the appropriate place
 - Improved observation of AP and client
 - improved client performance with better network management
 - refinement of system installation and deployment
 - new AP's?
 - old AP's badly sited?
 - improved diagnosis
 - managed link quality for QoS
 - flexible frame work
 - Better information provided to clients
- Capabilities, Measurements, Statistics
 - identify a RRM capable AP or client
 - request an AP to make measurement to determine environment
 - STA need to make and report measurements on environment
 - provide network configuration and statistics information
- Improved BSS Information
 - service characteristics for individual STAs
 - efficient use of resources
 - important to QoS services
- Information to Streamline Roaming
 - improve handoffs thru better information
 - Information about other APs in the ESS
 - scanning is unchanged in STA
- Provided six scenarios for RRM
 - AP MIB related configuration, control, & statistics
 - AP measurement
 - Distribution of management information to STAs
 - STA statistic retrieval
 - Command STA action for measurements

- o STA autonomous actions
- Protocol elements
 - o Add a bit to the Capability Information fixed field to indicate RRM capability
 - o Use the Action management frame type as defined in the IEEE802.11h draft
 - o Extension of the AP MAC MIB
 - o Use the measurement request and measurement report elements and protocol as defined in the IEEE802.11h draft
 - o Define a BSS load element
 - o Define an ESS Information element

Zhun Zhong from Philips Document 03/078***“RRM and Roaming Support”***

- Handoff interruptions
 - o due to channel scanning
 - o adjacent APs operate on different channels
 - o blind channel scanning
 - o STA listens to only one channel (no simultaneous operation)
 - o To check channel – AP must stop communicating
 - o handoff takes hundreds of milliseconds
- Collection of information would shorten handoff time
 - o neighbour list of APs
 - o Beacon
 - o Probe response
 - o Special management frame

Richard Paine from Boeing Document 03/085***“Location Enabled Network Services”***

- Used both in industrial and consumer locations
 - o Passenger lounges
 - several airlines already implementing service
 - o Coffee shops
 - o Towns
- New mobile devices
 - o VoIP
 - o PDAs, Laptops, PADs
- Examples of Location Networks
 - o Bluetooth
 - o WLAN
 - o Factory
- Provided a location services architecture
- Provided LENS architecture for measurements
 - o Radio signal strength
 - o Coexistence
 - o Rogue APs
 - o Microwaves
 - o Conference rooms
 - o Jammer detection
 - o Per client information

- o Per AP information

**Richard Paine from Boeing Document 03/087
“VOIP”**

- Provided a VoIP Strategic Architecture
 - Listed measurements for VoIP network
 - o Signal Strength
 - o Coexistence
 - o Rogue APs
 - o Bandwidth for VoIP
 - o Jitter for VoIP
 - o Microwave Ovens
- Jammer Detection
 - Per client information
 - Per AP information
 - Handover
 - Throughput
 - Conference room density

Motion: Allow 802.11 K to Hold teleconferences through 01-14-2004

Move Marty Lefkowitz

Second Charles Wright

Vote Unanimous

Motion to Recess

Approved unanimously 9:41

- - - - -

Thursday, January 15, 2003 1:00

Call to order

Review of the agenda

Meeting Call to Order	Paine	0	7:00pm
Technical Presentation	Kwak	30	7:00pm
RRM Issues Document	Paine	?	
RRM Vision and Architecture Document	Paine	?	

Agenda Approved unanimously

Reviewed the Issues document 02/308r13

- Chair requests that we have an Issues document and a requirements document that the group votes as the official document.
- It has been shown the need to have the devices be standardized so that interoperability between vendors can be accomplished and is required.
- The document will be used as the basis for an informative annex in the final Standard

Removed the control issues from the document

Discussion followed on the merit of having an official issues document owned by the group.

Reviewed the Visions and Architecture document (02/797r2)

Included AP MIB and changed per Client MIB and AP MIB to Peer Measure STA MIB and Self Measured MIB in section

SMLE is optional and will need to be mandatory

Recessed for the 3:00pm break

Called to order 3:30pm

J. Kim from AT&T Document 03/124

“Service Provider Measurement Scenario”

- Public WLAN Service
 - Many far-flung locations
 - Back haul could be any of
 - DSL
 - Cable
 - T1
 - ATM
 - IP
 - Frame Fixed Wireless
 - Managed at a few large Network Operations Centres (NOC)
 - Little technical knowledge to install
 - Little or no local support
 - uncontrolled interference environment
 - Needs to be remote access and automated
- Features needed
 - automatic frequency and power adjustment
 - information needs to be aggregated in some way
 - presents of all APs and STAs in the band
 - RSSI per STA
 - non 802.11 energy and noise power detect
 - Data rate averaged over window
 - Per STA counters
 - retries
 - drops
 - frames
 - check sum errors
- More to consider
 - Need new signal quality measure
 - Redefine RSSI
 - Redefine measure of loading
 - Aggregate or trend instantaneous parameters
 - how does higher layers trigger measurements
 - Neighbourhood boundary report

Tim Olson from Cisco Systems Document 03/091

“Radio Measurement Flow Control”

- Need to define STA measurement flow control the same for AP and STA
- Provide measurement access to upper layer entity via SME layer
- Leverage TGh measurement architecture
- STA stores local measurements

- Provided flow chart for measurement control
- Provided flow chart for Measurement message flow
- Provided measurement control path scenarios

TGk can define the MIB but has no ability to define how to retrieve the information from the outside entity.

SNMP is now in all APs

Break the work into 2 sections

Use extend TGh primitive set to get the information first then for a second if necessary write a recommended practice for use of SNMP.

Richard Paine relinquished the Chair to Joe Kwak

A presentation was given by Pichard Paine

TGh has empty boxes (Channel Switching, Measurement Policy), in the SME.

TGk could do the same but it would not define how to use it or define it(the box).

Joe turned the chair back to Richard

No motions are necessary

request meeting time in next meeting

Move to adjourn Simon Black

Second Harry Worstell

Approved unanimously 9:38

**IEEE P802.11
Wireless LANs**

Minutes of High Throughput Study Group Meetings

Date: January 14,16 2003

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Abstract

Minutes of the High Throughput Study Group meetings held during the IEEE 802.11/15 Interim meeting in Ft. Lauderdale from Jan. 13 through 17, 2003.

Executive Summary:

- 1. Completed a High Throughput PAR and 5 Criteria**
- 2. 40 Day LB to approve PAR and 5 Criteria was approved by the WG**
- 3. Jon Rosdahl will serve as Chair pro-tem for the March Plenary Meeting**
- 4. If the LB pass and should approval be gained for Task Group status at or before the March meeting a TG chair will be elected at the March meeting; Jon Rosdahl will not be a candidate for the TG chair. Two candidates have been nominated – Bruce Kraemer (Intersil) and Matthew Shoemake (TI). Nominations are still open.**

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Total – 114 inclusive of all meetings

Tuesday Jan. 14, 8:00-10:00 AM

:

1. Meeting was called to order by Jon at 8:02 AM
2. Jon Rosdahl strawman (doc. 11-03/012r0) agenda for the week was:
 - Meeting Call to Order
 - Approve/Modify Agenda
 - Review IEEE/802 & 802.11 POLICIES and RULES
 - Approve minutes of last meeting
 - Discuss/Revise PAR and 5 Criteria
 - Recess at 9:30 Thursday evening

3. Motion to approve Agenda by Adrian Stephens, seconded by Micky Mehta passed w/o comment unanimously (60,0,0)
4. Policies and Procedures
 - a. 75% rule
 - b. IEEE-SA Standards Board By-Laws on patents and standards was reviewed
 - c. Inappropriate topics for IEEE WG Meetings was reviewed
 - d. anyone may vote
5. Motion to approve minutes of last meeting by Bruce Kraemer , seconded by Colin Lanzl passed unanimously w/o comment
6. Meeting Objectives
 - a. finalize wording of PAR
 - b. develop response to 5 Criteria
 - c. Send PAR and 5 Criteria to WG 30 days before the Mar. meeting to perhaps allow the group to function as a TG on Monday of the March meeting
7. Current PAR is doc. 02/798r0 and 5 Criteria is doc. 02/799r0
8. Current scope reviewed. Noted it is recommended to be $\leq$ 5 lines
9. Presentation 03/075r0a by Colin Lanzl from Aware on Scope
 - a. Bounds
 - b. Issues
 - i. Channel models are based on usage models which are based on our applications/usage scenarios
 - c. Needs
 - d. Technical Requirements
 - e. Selection Criteria
 - f. Proposed scope statement
10. Discussion
 - a. There are assumptions on jettisoning current MAC
 - b. Good start
 - c. Good compromise
 - d. Modes of operation refers to departures from the existing standards
 - e. Why 100 Mbps target? A – 100 mbps Ethernet
 - f. Should worldwide deployment be explicitly stated?
 - g. Throughput in terms of Mbps/Hz/user/????
 - h. Perpetuate the concept of separate self-contained MAC and PHY?
 - i. Don't tie to a particular band since the worldwide regulatory environment is changing
 - j. Reference MBWA (Mobile Broadband Wireless Access) PAR
 - k. Target family of rates for each scenario since 100 Mbps could be very expensive especially in a mobile environment
 - l. Cost/Performance/Complexity trade-off
 - m. Straw Poll – in favour of scope as it stands (71,6,2)

- n. Straw Poll – should we add ‘global’ to the existing scope failed (1,56,11)
 - o. Straw Poll – should we remove reference to specific target failed (4,51,15)
- 11. Motion to adopt “ To define standardized modifications to both the 802.11 PHY and the 802.11 MAC so that modes of operation can be enabled that are capable of much higher throughputs, with a target minimum throughput of 100 Mbps as measures at the MAC data SAP” as the scope was made by Colin Lanzl and seconded by Micky Mehta. Passes (75,9,4)**
12. Motion to adopt “ Proposals submitted in satisfaction of this PAR will be evaluated against usage models including (but not limited to) residential, hot-spots and enterprise. Additionally, proposals will be evaluated at least on their improvement of and impact to range, latency, jitter and backward compatibility. A technical requirements document and a selection procedure document incorporating these minimum criteria (and perhaps others) shall be used to evaluate and select proposals” as the explanatory notes for clause 18 in the PAR was made by Colin Lanzl but was not seconded.
13. Discussion:
- a. Add network capacity
 - b. Application is as important as usage model
 - c. Add power consumption and spectrum efficiency and etiquette
 - d. Mixed requirements and selection criteria
 - e. Backwards compatibility must be addressed
 - f. Bruce Kraemer, doc. 03/082r3, reviewed the MBWA PAR and Explanatory notes. In explanatory note, a table was included
 - g. Let’s not get too specific at this point
 - h. We need an ad hoc meeting to wordsmith the explanatory notes
 - i. Use comparison criteria versus hard requirements
 - j. Don’t use ‘winner take all’ approach, leave it open by using ‘technical solutions’
14. Colin requested help to further wordsmith the explanatory notes
15. 13 volunteered
16. Call for inputs to 5 Criteria doc 02-799r0
17. Jon formally declared that he would not be standing for chair of TG should it be created and called for candidates for chair
18. Meeting recessed – at 9:52 AM until 7:00 PM this evening

Tuesday Evening 1-14-03, 7:00 – 9:30 PM

- 1. Colin Lanzl (Aware) rewrote PAR clause 18 and presented as Doc. 03/088r0 since his previous motion did not receive a second. His proposal is copied below:

18. Additional Explanatory Notes: {Item Number and Explanation}

Item 12.

In the process of formulating this PAR, it was found that there are multiple user scenarios. Accordingly, the task group will undertake the following steps:

1. Identify *and define* usage models, channel models and related MAC and application assumptions. Initial usage models envisioned include hot-spot, enterprise and residential; others are likely to be included.
2. Identify *and define* evaluation metrics that characterize the important aspects of a particular usage model. The evaluation metrics may include but are not limited to the items listed in Table 1, provided in illustration of the format.

Table 1: Evaluation Metrics

Evaluation Parameter	Usage Model 1	Usage Model 2	Usage Model 3
Throughput at the MAC data SAP, Mbps ^{Note I,11}			
Range , meters			
Aggregate Network Capacity [□]			
Power Consumption (peak and average), mW			
Spectral Flexibility ^{□□}			
Cost / Complexity Flexibility			
Backward Compatibility ^{**}			
Coexistence [*]			

Notes:

[□] Definition includes a measure of spectral efficiency (like bits/Hz/user/square meter).

^{□□} That is, agnostic to a particular frequency allocation and perhaps able to implement spectral agility.

^{*} The ability of one system to perform a task in a given shared environment in which other systems have an ability to perform their tasks and may or may not be using the same set of rules.

^{**} Backward compatibility with non-HT 802.11 devices is desirable to the extent practicable. It is a comparison metric but is explicitly not mandated. The question of what possible tradeoffs exist between high effective throughput modes and backward compatibility mechanisms requires detailed technical information that is not now available to the HT Study Group.

- i. The target figure of 100 Mbps net throughput is intended as a guideline for the highest throughput mode. It is intended that net throughput will be a primary comparison metric, and it is possible that modes with net throughputs much higher than 100 Mbps will be defined. And the figure of 100 Mbps is intended as a mandatory minimum throughput for the highest throughput usage models

- ii.
- iii. It is anticipated that the new standard will contain a family of related modes, with different net throughputs. It is anticipated that some of these modes will have net throughputs that are substantially below 100 Mbps, but that are still substantially higher, given similar operating conditions, than any modes in the existing 802.11 standard.
- iv. *The figure of 100 Mbps is intended as a mandatory minimum throughput for the highest throughput usage models*

3. Develop a technical requirement specification.

4. Define a process for evaluations.

2. Discussion:

- a. Table in proposal was including only as an example
- b. Are 'notes' necessary
- c. Identify -> identify and define in two places
- d. Paragraphs on throughput proposed by Sean Coffey from TI as follows:
 - i. The target figure of 100 Mbps net throughput is intended as a guideline for the highest throughput mode. It is intended that net throughput will be a primary comparison metric, and it is possible that modes with net throughputs much higher than 100 Mbps will be defined.
 - ii. It is anticipated that the new standard will contain a family of related modes, with different net throughputs. It is anticipated that some of these modes will have net throughputs that are substantially below 100 Mbps, but that are still substantially higher, given similar operating conditions, than any modes in the existing 802.11 standard.

3. Discussion:

- a. Paragraphs on throughput not necessary, waters down PAR too much
- b. Modes less than 100 Mbps should not be disallowed
- c. Keep word 'target' to retain flexibility
- d. Use of 'family' is consistent with our scalability goals
- e. Straw Poll – happy with putting paragraphs as they are into the docs (52, 9,11)
- f. Straw Poll – who wants to give more thought before including in the doc (visual yes indication)
- g. Need to keep 100 Mbps as an absolute hard limit
- h. Adaptive modulation or water filling would qualify under the paragraphs above
- i. Eliminate 'net' and just refer to throughput
- j. Straw Poll – Colin's doc. with Sean's paragraph's added (42,2,17)

4. Paragraphs on backward compatibility proposed by Sean Coffey from TI as follows:

- a. High throughput amendment aims to produce a unified amendment that provides a high degree of commonality in solutions, and to preserve interoperability between all High Throughput devices. It is desirable that every HT device should be capable of communicating with every other HT device.

- b. Straw poll – happy if just the last sentence (18)
 - c. Straw poll – those happy with full paragraph (9)
 - d. Let's not encourage optional modes in our PAR as this leads to poor interoperability.
 - e. Commonality is good but let's not force interoperability in all cases, e.g., Multiple bands and multiple modes would be problematic
 - f. Commonality, interoperability, required or desired are the issues
 - g. What does solution mean? Mode of operation?
 - h. Solution means total module hear
 - i. Straw poll – agree on keeping this phrase “produce a unified amendment that provides a high degrees of commonality” failed (11,24,22)
 - j. Purpose of this paragraph – underline concept of consumer/enterprise/hot spot devices communicating effectively
 - k. Straw poll –Resolved: it is important that every HT device should be capable of communicating with every other HT device to the extent possible (47,0,17)
 - l. Straw poll – mandatory instead of desirable underlined in statement above (39,4,7)
 - m. Should include - Within range and in a common band.
 - n. Really should be saying the devices should interoperate
 - o. Straw poll – those that agree with “It is mandatory that every HT device should be capable of communicating with every other HT device in the same local area, provided that they operate in the same frequency band.” (51,1,14)
- 5. Motion to put the above paragraph doc.03/088r0 as amended to become document 03/088r1 as clause 18 of the HT PAR was made by Colin Lanzl and seconded by Bruce Kraemer. The amended document is shown above.
 - 6. Motion to table the motion above was made by Tim Wakeley and seconded by David Kline failed (5,38,19)
 - 7. Return to the motion on the table
 - 8. Motion to amend by Tim Wakeley and seconded by David Kline to remove the paragraph added related to throughput (i.e., notes i) and ii) fails (6,48,7)
 - 9. Return to the motion on the table
 - 10. Motion to amend by Adrian to add “It is mandatory that every HT device should be capable of communicating with every other HT device in the same local area, provided that they operate in the same frequency band.” to the end of the document was seconded by Pratik Mehta.
 - 11. Question was called but failed (15,14,19) since a 75% majority is required in a study group.
 - 12. Discussion:
 - a. Too hasty
 - b. Technical therefore should be included in the actual scope
 - 13. Call the question and it failed (13,15,25)
 - 14. Orders of the day
 - 15. Recessed until Thursday evening at 7 PM when we will deal with:
 - a. Motion to amend

- b. Then main motion

Secretary note: at mid-session plenary additional time for HT-SG Thursday afternoon was approved by the WG

Thursday Afternoon/Evening 1-16-03, 3:30 – 9:30 PM

1. Jon reviewed schedule needed to get this SG approved as a TG for the March plenary meeting
2. Further discussion on Adrian's motion to amend
3. Question to amend was called and failed (2,51,6)
4. Discussion on the main motion 03/088r1
5. Question of the main motion was called and the motion failed (6,22,40) without discussion
6. Do we really need text in para 18? Consensus was overwhelmingly yes (show of hands)
7. Question by Jon – those willing to put estimated date of March 2006 in PAR agreed (52,1,9)
8. Consequences were unknown however it was noted that the NEScom automatically assigns 4 years to the length of the PAR
9. Motion by Eric Jacobson, second by Colin Lanzl to put the estimated date of 2007-03-15 in clause 11 of the PAR
10. Discussion
 - a. Too pessimistic, wants 2006-03-15
 - b. Suggestion to compromise on 2006-09-15 was not supported by a show of hands
11. Motion to call the question passed (38,1,11)
12. Motion on clause 11 date of 2007-03-15 passes (39,7,17)
13. Straw Poll for those that were confused on previous motion and wish to leave the date as 2007 is (13, 23, x)
14. Motion to reconsider by Malik Audeh and seconded by Colin Lanzl passed (37,2,21)
15. Discussion
 - a. 2007 is too late
 - b. Since standard is so broad 2006 is not realistic
 - c. 2007 is not a good message to give to the press
16. Question was called without objection
17. Motion to add date 2007-03-15 in clause 11 (as stated in the original motion) failed (24,31,17)
- 18. Motion to consider 2006-09-30 as date for clause 11 in PAR by Malik Audeh and seconded by Colin Lanzl**
- 19. Motion passed (55,6, 10) so the date in clause 11 was changed to 2006-09-30**
20. In paragraph 18, 'Item 12' will have explanatory text added
21. Clause 17 in Draft PAR response was set to NO by acclamation
22. Discussion on clause 18
 - a. Tim Wakeley, doc. 02/748r2 on Enterprise environment and why HP would like to see the standard as more revolutionary as opposed to evolutionary. We will have gigabit EN to compete with he said
 - i. Discussion:

1. Range-rate could be satisfied by smaller BSSs
2. What about power and cost/complexity
3. What would high end be; by then it will be 10 gigabit
4. DT and NB platforms
5. Incremental increases will in fact slow the market adoption down as people will wait
- b. Colin Lanzl asked for issues with clauses in doc. 03/088r1 so group could focus only on clauses with issues
 - i. No issues with Sections 3 & 4
 - ii. No issues with Section 1
 - iii. No Issues with Table 1
 - iv. Issues with Note related to capacity
 1. 'like bits per second per Hz (spectrum efficiency) *per user(?)* per sq meter'; per user was removed
 - v. No Issues with Note related to 'Band agnostic'
 - vi. No Issues with Note related to 'coexistence'
 - vii. No Issues with 'backward compatibility'
 - viii. Issues with Note related to target figure of 100 Mbps
 1. Remove target and guideline and replace with 100 Mbps as minimum

23. Motion to accept text 03/088r1 with the exception of the note related to the target data rate as clause 18 in the PAR was made by Colin Lanzl and seconded by Brett Douglas passes (37,12,7). This will become 03/088r2.

24. Further discussion of note related to throughput value:

- a. Wording under discussion "The figure of 100 Mbps throughput is intended as a (mandatory) minimum value for the highest throughput usage models"
 - i. Mandatory mode instead of mandatory minimum
 - ii. Mandatory was right the first time
 - iii. Need to indicate minimum packet size if we define throughput
 - iv. Use nominal instead of mandatory
 - v. Straw poll to return mandatory to its original location was favourable

25. Session was recessed until 7:00 PM

1. Session was reconvened at 7:01 PM
2. Straw Poll – are the footnotes as they are sufficient (9,4,6)
3. Should we move on to 5 Criteria? Chair's rationale was No so Group returned to topic of throughput number
4. Straw poll to add "The figure of 100 Mbps is intended as a mandatory minimum throughput for the highest throughput usage models" (30,7,6)
5. Straw Poll to make this the final addition to this particular footnote (20,19,6)
6. Move by Colin Lanzl and seconded by Micky Mehta to add "The figure of 100 Mbps is intended as a mandatory minimum throughput for the highest throughput usage models" as a footnote to the table.

7. Discussion
 - a. No, not the only text we are adding
 - b. People are confused, yes additional sentences can be added to the throughput footnote
8. Motion passed (43,0,5)
9. Straw poll – to place the sentence in the footnote as shown above (16,8,22)
10. Discussion:
 - a. Let's replace '100 Mbps' to '100 to 200 Mbps'
 - b. Remove 'the figure' and replace as '100 Mbps or more'
 - c. Straw poll – is this better? (28,5,9)
 - d. 'or more' makes text vague
 - e. Straw poll – delete 'or more' (38,11,3)
 - f. Straw poll – add 'at least' (majority agree)
 - g. Straw poll - to remove 'intended as a' and replace with 'the' (majority agree)
 - h. Straw poll – remove 'throughput for' (majority disagreed)
- 16. Motion by Colin and seconded by John Terry for the footnote on throughput to read “It is intended that throughput will be a primary comparison metric and at least 100mbps is the mandatory minimum throughput for the highest throughput usage models. It is anticipated that the amended standard will contain a family of related modes, with different throughputs. It is anticipated that some of these modes will have throughputs that are substantially below 100 Mbps, but that are still substantially higher, given similar operating conditions, than any modes in the existing 802.11 standard.**
11. Motion by Javier Del Prado and seconded by Gustav ? to amend by changing 'highest' to 'high' fails (3,56,12)
- 12. Main motion passed (50,1,10)**
13. Clause 18 became doc. 03/088r3 as follows:

18. Additional Explanatory Notes: {Item Number and Explanation}

Item 12.

In the process of formulating this PAR, it was found that there are multiple user scenarios. Accordingly, the task group will undertake the following steps:

1. Identify and define usage models, channel models and related MAC and application assumptions. Initial usage models envisioned include hot-spot, enterprise and residential; others are likely to be included.
2. Identify and define evaluation metrics that characterize the important aspects of a particular usage model. The evaluation metrics may include but are not limited to the items listed in Table 1, provided in illustration of the format.

Table 1: Evaluation Metrics

Evaluation Parameter	Usage Model 1	Usage Model 2	Usage Model 3
Throughput at the MAC data SAP, Mbps [#]			
Range , meters			
Aggregate Network Capacity [□]			
Power Consumption (peak and average), mW			
Spectral Flexibility ^{□□}			
Cost / Complexity Flexibility			
Backward Compatibility ^{**}			
Coexistence [*]			

Notes:

[□] Definition includes a measure of spectral efficiency (like bits/Hz/square meter).

^{□□} That is, agnostic to a particular frequency allocation and perhaps able to implement spectral agility.

^{*} The ability of one system to perform a task in a given shared environment in which other systems have an ability to perform their tasks and may or may not be using the same set of rules.

^{**} Backward compatibility with non-HT 802.11 devices is desirable to the extent practicable. It is a comparison metric but is explicitly not mandated. The question of what possible tradeoffs exist between high effective throughput modes and backward compatibility mechanisms requires detailed technical information that is not now available to the HT Study Group.

[#] It is intended that throughput will be a primary comparison metric, and at least 100Mbps is the mandatory minimum throughput for the highest throughput usage models. It is anticipated that the amended standard will contain a family of related modes, with different throughputs. It is anticipated that some of these modes will have throughputs that are substantially below 100 Mbps, but that are still substantially higher, given similar operating conditions, than any modes in the existing 802.11 standard.

3. Develop a technical requirement specification

4. Define a process for evaluations

14. Straw poll – (concept only) Does the group feel it is worthwhile to mention an example possible throughput of 200Mbps somewhere in section 18? (19,27,22)

15. How many are willing to say PAR is done for now and push on to 5 Criteria. (42, 2, 11)

16. Turning to 5 Criteria document:

a. 6.2 Compatibility proposed by Colin Lanzl in doc. 03/127r0a

- b. Compatibility with IEEE 802 requirements will result from keeping the MAC SAP interface the same as for the existing 802.11 standard. The proposed amendment shall introduce no 802.1 architectural changes. The MAC SAP definition shall not be altered ensuring that all LLC and MAC interfaces are compatible to and in conformance with the IEEE 802.1 Architecture Management and Internetworking standards. New managed objects shall be defined as necessary in a format and structure consistent with existing 802.11 managed objects.

17. Motion by Colin Lanzl and seconded by Bruce Kraemer that this text be adopted as 6.2 in the 5 Criteria passed by acclamation.

- 18. Motion by Bruce Kraemer and seconded by Colin Lanzl that doc. 03/082r3 be added into clause 6.1 of 5 Criteria as
 - a. B) A wide variety of vendors currently build numerous products for the WLAN marketplace. It is expected that the majority of those vendors, and others, will participate in the standards development process and subsequent commercialisation activities.
 - b. C) WLAN equipment is accepted as having balanced costs. The addition of High Throughput capabilities will not disrupt the established balance.

19. Motion passed by acclamation

- 20. Motion by Colin Lanzl (doc. 03/128r1a) and seconded by Brett to reconsider section 6.4 and add “The following documents are examples that support the feasibility of elements of high throughput technology.”

IEEE 802.11-02/180r0	On the use of multiple antennas for 802.11
IEEE 802.11-02/138r0	Throughput Analysis for IEEE 802.11a Higher Data Rates
IEEE 802.11-02/232r0	Extended data rate 802.11a
IEEE 802.11-02/294r1	HDR 802.11a solution using MIMO-OFDM
IEEE 802.11-02/320r0	¼ Giga-bit/s WLAN
IEEE 802.11-03/025r0	Benefits of smart antennas in 802.11 networks
IEEE 802.11-02/708r0	MIMO-OFDM for high throughput WLAN: experimental results

And for part b

The technologies referenced in some of the documents above have been in use in other fields for some time. Until the full extent of the user models referenced in the HTSG PAR is understood, the study group cannot completely assess the extent of reasonable testing for those technologies. However, the increased capabilities envisioned for the baseband and RF parts necessary to implement the proposed amendment are in line with the current progress in ASIC technology.

And for part c

Analysis of current WLAN products and of proposals of potential candidate approaches provides confidence in the reliability of the proposed solutions.

There are currently reliable WLAN solutions. The study group envisions that the proposed amendment will result in no less reliability.

21. Straw poll – is the above text sufficient (32,2,8)

22. Motion for clause 6.4 text passed by acclamation

23. Motion by Colin Lanzl (doc. 03/129r1a) and seconded by Zhong (?) to use as part ‘a’ of clause 6.5 “Support of the proposed standard will probably require a manufacturer to develop a modified radio, modem and firmware. This is similar in principal to the transition between 802.11b and 802.11g or between 802.11b and 802.11a. The cost factors for these transitions are well known and the data for this is well understood” and for part ‘b’ of clause 6.5

“The new standard will provide manufacturers the option of supporting higher throughput. In general, the cost factor changes needed to implement the extensions envisioned by the study group are well within the capabilities of existing technology.

Competition between manufacturers will ensure that costs remain reasonable.

And for part ‘c’ “The proposed amendment has no known impact on installation costs.

24. Motion Passed by acclamation

25. Plan for next meeting

- a. Motion for the WG to “Move to conduct a WG Letter Ballot 02/798r2 (PAR) and 02/799r2 (5 Criteria) and WG Chair to pre-submit to the executive committee for the March 2003 SEC meeting by 2-7-03 for the purpose of creation of the High Throughput Task Group” moved by Colin Lanzl and seconded by Bruce Kraemer, passed (59,0,2).

26. The WG chair has authorized Jon Rosdahl as the chair pro-tem of the potential new TG

27. Goals for March Meeting

- a. Resolve LB comments
- b. Create Task Group
- c. Elect a Task Group Chairman

28. Meeting was adjourned at 9:30 PM

**IEEE P802.11
Wireless LANs**

Minutes of Wireless LAN Next Generation Standing Committee Meetings

Date: January 13-17, 2003

Author: Bruce Kraemer
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Abstract

Minutes of the Wireless LAN Next Generation Standing Committee meetings held during the IEEE 802 Interim meeting in Fort Lauderdale, FL from Jan 13 through 17, 2003.

Executive Summary:

1. Update reports were received from MMAC, WIG, IAG and ETSI-BRAN, WG18
2. Primary group discussion on how to organize and progress Interworking in conjunction with WIG activity.
 - a. Request to form liaisons with 3GPP & IETF reemphasized
3. Presentation on smart antennas was made

Minutes of the IEEE 802.11 WNG SC, Tuesday 14 Jan 2003, 13:00-15:00.

Chair: TK Tan

Vice Chair: Bruce Kraemer

Temporary Secretary appointed, Adrian Stephens (Intel)

Chair called meeting to order at 13:10. 80 members present at this time.

TK Tan presented his chair's introduction in 03-034r0

027-81 Minutes from Kauai meeting (Nov '02), presented by Bruce Kraemer.

No comments on minutes.

Move to accept the minutes: chair. Seconded: Garth Hillman. No discussion.

Motion passed by unanimous consent.

03-005r0. Liason from 3GPP2.

Express willingness to look at WIG output and harmonise work between both organizations. No comment from floor.

03-004r0 WIG baseline document & 03-006r0 WIG work update (Powerpoint format).

Steve McCann (Siemens, Roke Park) walked through document. Document available on the server. This document is the initial output of the WIG, intended to be the point of coordination between MMAC, ETSI and IEEE re interworking. No questions from the floor.

Chair: it is our responsibility to comment on this document for the review of WIG.

Chair: some companies expressed interest to elevate WIG to a level similar to a TG, to create a stronger push to create new standards.

Chair: PAR and 5C are available on the server for elevation of this SC to a TG.

Chair posed question: should this activity be a TG, or a recommended practice?

03-003r1. WIG draft 5 Criteria. Presented by Steve McCann.

Discussion:

Q: Mike Moreton: IEEE cannot standardize interworking of 802.11 LANs. There is no chance this can become a standard. Best hope is recommended practice.

Q:?: How do other activities (e.g. 3GPP) relate to this? A: we are standardizing on size of the interface (wireless LAN). A: re 3GPP2 – WIG should be single point of contact to reply in a unified way to 3GPP2. Q: concerned that we duplicate work of 3GPP. A: agree – this work has been going on for 3 years and has been tracking SA2, and we have sent liaisons.

Q: Dave Hytha (Silicon Wave): important to avoid polarization about who we talk with. A: have sent out numerous liaisons to lots of organizations.

Vice chair: what about status of our liaisons? A: had to be approved by 3 bodies – delayed process until mid December. Have heard from 3GPP2 (earlier letter). 3GPPSA2 (umbrella) will send a liaison. GSMA wireless lan sub-group has also responded. Wi-Fi, WISPR, IETF still pending.

Q: ??: does this still have to go through MMAC and ETSI for approval? Chair: this is a TG under 802.11, but whatever this TG produces should be a joint effort endorsed by all 3 organisations. Q: how will upcoming WIG2 meeting in Japan affect this? Chair: WIG2 is independent regardless of the outcome of this TG. WIG2 will continue as a body to pull together joint discussions. Q: Amer: is WIG2 organised by MMAC? A: yes in Feb, Japan. WIG3 in June/July this year by ETSI.

Q: vice chair: please state what you want to obtain from standing committee before WIG2 happens. A: it would be good to know whether 802.11 will create a new TG first.

Q: Amer Hussain: do we have to take a position now on whether this activity results in a TG, study group? Q: Andy Gowans: does this have to be an 802.11 activity? Chair: one can identify a chunk of work that sits under 802.11. Tutorial and BOF session at last session may culminate in some kind of activity.

Important to get input from other 802 WG.

03-002r1. WIG draft PAR. Presented by Steve McCann.

Q: Mike Moreton: IETF standardizes interworking between 802 LANs. Shouldn't we be getting them involved, and only get involved if they don't pick it up?

A: we are specific to Wireless LANs. Scope of IETF is bigger. Have sent a liaison to IETF.

Q: all protocols are IETF protocols – so should have a strong interest. A: want to re-use a lot of their protocols, but need an activity to pull the protocols together.

Q: Adrian Stephens: isn't some of this outside the scope of 802.11 that stops at the top of the MAC interface. A: yes, but TGi also do this. Q: Mike Moreton: TGi only recommend this, and their scope is limited. A: TGi do not stipulate any particular protocol. Where this body sits is an important point.

Q: ??: thinks this is out of scope. If agnostic to air interface, not clear how this fits in. Q: Garth Hillman: Stuart says: "there is no rule that says 802.11 is limited to MAC and PHY".

Q: Peter Ecclesine: we are adding value by participating in this process, not is it about the details. Q: Farouk Bari: 3GPP have said that they view wireless LAN as a black box, and their protocols are out of scope of 3GPP. It seems like this activity is a new case for 802.11, for example in instances where charging is applicable.

Q: Dave Hytha: there is every reason for this group to be involved in protecting the integrity of the engineering of different solutions and 802.11. Don't want to hand this over to another group and loose this integrity.

Q: Peter Ecclesine: lots of other groups tackle lots of other layers. We evolve and do what we can do. Not worried about protecting the existing standard. Need ease of use, VPN, DNS servers.

Chair: we've had lots of good discussion. Should this be a standard or recommended practice? Should this be done in .11 or higher?

Chair: there's a mixed response. Therefore continue to think about these issues. Recommend that this be re-visited in tomorrow's section. Want Steve McCann to put down concrete next steps for consideration and defer any further discussion until then.

03-025r0. Presented by John Reginer (Tantivy Communications). Benefit of smart antennas in 802.11 networks.

Q: results collected for multiple BSSs? A: no, single AP & client.

Q: Andrew Myles: what would effect of different (hidden) STAs on throughput? A: STA may appear in the shadow. Q: what about STA not hearing each other using DCF? A: if smart antennas on the STA, hidden node problem reduces because STA "point in" towards center of BSS.

(Applause).

Chair: recess. Reconvene tomorrow 1:00pm.

Wednesday, January 15, 2003 Minutes

Seesion 1-3pm

Chair: TK Tan

Vice Chair: Bruce Kraemer

Temporary Secretary Bruce Kraemer

Chair called meeting to order at 13:10. 50 members present at this time.

ETSI BRAN 31 Update

Presented by Steve McCann, Siemens (doc 11-03-042r0)

Presented status from ETSI BRAN meeting held 10-13 Dec, '02.

MMAC update

Presented by Takashi Aramaki, Panasonic

ARIB has published two new WLAN standard documents:

ARIB STD-T70 covers HiSWANa version 2

ARIB STD-T83 covers HiSWANa version 1. This is an upcoverted version that operates in the 25-27 GHz bands. In the future, version 2 will define a method for channel bundling that will allow up to 6 channels to be combined and over the air rates of up to 324 Mbps.

Other high rate standard activities are on hold for now.

Review of IAG activities since Monterey meeting in November.

Presented by Amer Hassan, Microsoft

Looking for agenda topics for next meeting. Discussed preferred meeting location and dates for next face to face. Straw pool of attendees indicated first choice was in conjunction with Dallas (March) meeting of IEEE 802 and second choice was in conjunction with Munich (March) meeting of WiFi alliance. No interest in independent meeting venue.

WG18 – Radio regulatory overview.

Presented by Denis Kuwahara, Boeing

Gave an overview of activities within WG18 (doc18-03-004r0). Indicated that the Boxer-Allen bill is being released in US to request allocation of 255 MHz between 5.47 and 5.725 GHz. FCC released notice of intent to provide additional unlicensed spectrum with initial targets being broadcast band at 900 MHz and second band around 3.5 GHz.

Interworking

Steve McCann, Siemens

Continued discussions of WIG (doc 11-03-098r1). Steve reminded everyone there is an extant reflector at wig@list.etsi.fr

There were several questions raised about WIG:

Q: Of the 7 liaison letters sent out what responses have been received?

A: Formally received acceptance from 3GPP SA.

Q: What if 802.11 just lets 3GPP do all the work?

A: Would not guarantee acceptable interface for 802.11 devices.

Q: Should IEEE 802.11 create direct liaison relationship with 3GPP and 3GPP2 TSGC?

A: Liaison letters will be written for WG chair to send out shortly.

Straw pools taken:

Continue to review WIG activities in WNG

Yes: 36 No:0 Abstain: 6

Begin work to create a task group:

Yes: 1 No 3 Abstain: 26

Transfer the work to some other organization:

Yes: 0 No 27 Abstain: 12

Conclusion

At the end of this discussion TK indicated work items for this session had been completed.

Call for any additional discussion topics. None suggested.

Motion to adjourn made by Mike Moreton, Second by Larry Arnett

Yes 48, No 0

**IEEE P802.11
Wireless LANs**

Minutes of Publicity Standing Committee Meeting

Date: January 14, 2003

Authors: Brian Mathews
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Abstract

Minutes of the Publicity Standing Committee meeting held during the IEEE 802.11 interim meeting in Ft. Lauderdale, Florida, USA January 13 through 16, 2003.

The agenda was approved unchanged.

Discussion of recent press coverage of 802Wireless:

Discussion on 11g, whether companies can claim compliance to 11g, is it an IEEE trademark issue? Most in the room believe it is not.

Discussion of how to address the hype on 11g. Question was asked: Can we issue a press release to counter the hype and have more accurate information available? It was mentioned that reasonably accurate information is easily accessible from the 802.11 website but journalists choose not to use that information.

WiFi Alliance Update (presented by Bill Carney, same document as liaison report):

- Ⓢ Added public access to WiFi Alliance mission statement
 - Ⓢ WiFi Zone branding initiative for hotspots
 - Ⓢ 11a testing began late November, six products have been certified
 - Ⓢ WPA now released for enhanced security based on 802.11i draft version 3.0.
- Question was asked if WPA would track any changes to .11i or if it was frozen. Bill C. said the question should be asked to the WiFi liaison report on Friday and the liaison will report back to answer it.

WiMedia Alliance Update:

- ⑩ John Barr presented a good overview of the WiMedia alliance.
- ⑩ Same presentation will be made on Friday as a liaison report.
- ⑩ An individual urged WiMedia Alliance/802.15.3/3a to work with 1394 to be sure that .15.3/3a will be the wireless transport for wireless 1394.

802.15 Tutorial:

- ⑩ Glyn Roberts reviewed tutorial information which will be posted to the 802.15 web site.

Singapore:

- ⑩ Discussion of preparation needed for Singapore meeting in May.
- ⑩ Conclusion was to rely primarily on IEEE marketing staff to provide materials and guidance. Brian Mathews and Glyn Roberts will discuss this with IEEE marketing staff (Karen McCabe) on Wednesday 15-January-2003.

Objectives for March meeting:

- ⑩ Review status of preparation for Singapore
- ⑩ Reports from WiFi Alliance & WiMedia
- ⑩ Review update text for 802News web site

Meeting adjourned.

Task Group G Report

January 17, 2003

Matthew B. Shoemake
IEEE 802.11 Task Group G
(shoemake@ti.com)

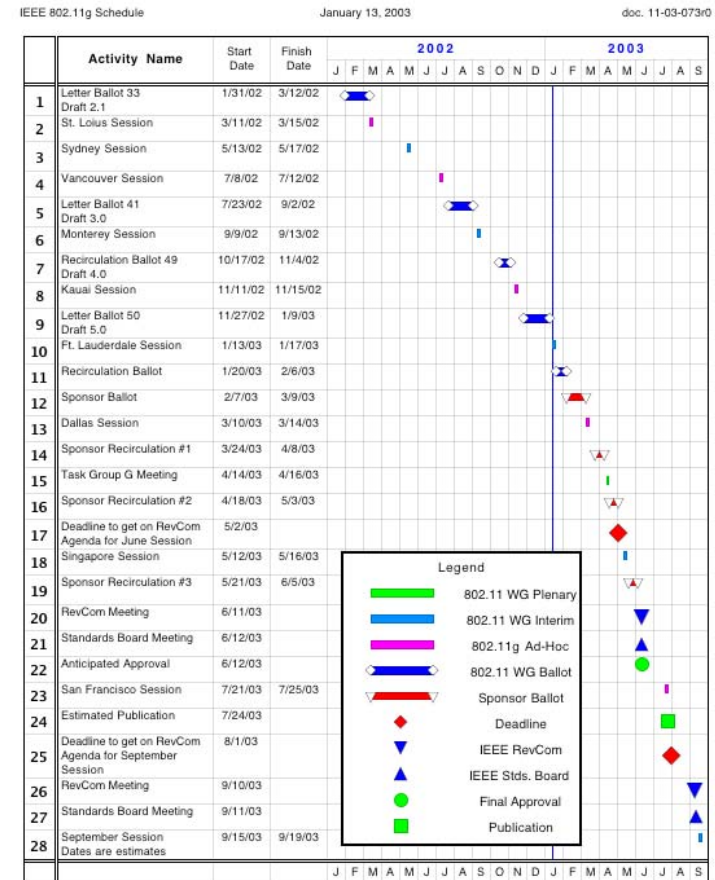
Letter Ballot 50 Comment Resolution

- Adopted resolutions on all 352 comments
- Comment resolutions are available in doc.
11-03-068r2

Status of the Draft

- Based on comment resolutions, the draft has been updated to 6.1
- The draft meets the 4 hour requirement to be voted on at this session

- The detailed IEEE 802.11g schedule is available in document 11-03-073.
- As of today, current revision is 11-03-073r1



Submission

Motion #1

- **Move to request a 15-day Working Group recirculation ballot on Draft 6.0 of IEEE 802.11g with an opening date of January 20, 2003 and a closing date of February 6, 2003.**
- **Passed in TGg: 30-0-1**

Note: Draft updated to 6.1 during WG session. Draft 6.1 to go to ballot.

Motion #2

- **Move to request an 802 ExCom e-mail ballot on the question of conditional approval to forward to sponsor ballot (Procedure 10) Draft 6.0 of IEEE 802.11g.**
- **Passed TGg: 28-0-3**

Note: Draft updated to 6.1 during WG session.

Motion #3

- **Whereas IEEE 802.11 Task Group G would like to have Sponsor Ballot comments to resolve at its March 10-14, 2003 session...**

Contingent upon obtain Procedure 10 approval for 802.11g and contingent upon execution of the 15-day recirculation ballot on Draft 6.0 and contingent upon meeting all the requirements of Procedure 10, reject all comments submitted on the 15-day recirculation ballot and request a 30-day Sponsor Ballot on 802.11g Draft 6.0 with a targeted starting date of February 7, 2003.

- **Passed in TGg: 28-0-6**

Note: Draft updated to 6.1 during WG session.

Motion #4

- **In response to the WFA letter to the IEEE 802 Executive Committee (doc. 11-03-077), move to forward the draft response in doc. 11-03-123r2 to the IEEE 802.11 Working Group.**
- **Passed in TGg: 31-0-1**

Note: Working group chair to forward letter. No motion introduced or required in WG session.

Motion #5

- **Move to request that the ANA issue 802.11g three new status codes and one new element ID. (Status codes requested are 25-27 and element ID number requested is 50.)**
- **Passed by Unanimous Consent in TGg**

Motion #6

- **Move to request publication of draft 6.0r1 of IEEE 802.11g immediately following the January 2003 session.**
- **Passed in TGg: 16-1-5**

Note: Draft updated to 6.1 during WG session.

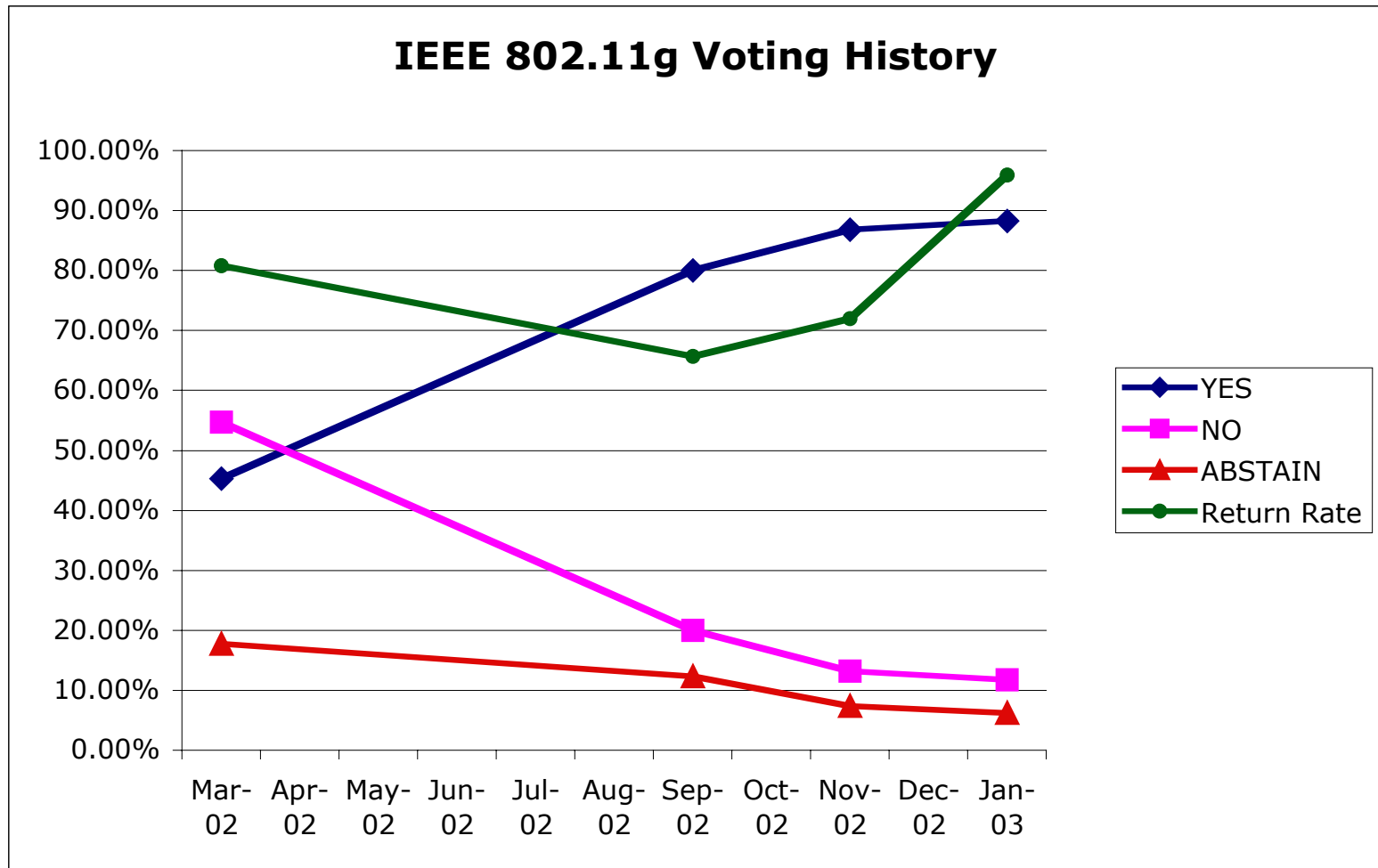
Note: UC received to TGg editor to add line numbers to Draft 6.1.

Next Meeting Objectives

- Review and resolve Sponsor Ballot comments
- Update to Draft 7.0
- Request a Sponsor Recirculation Ballot

Backup

History of 802.11g Balloting



TGh Closing Report

Mika Kasslin
TGh chair

Overview

- Draft D3.0 in Sponsor Ballot
 - failed to exceed 75% return rate by the original ballot closure date Jan 13th
 - 45 comments received though
 - ballot extended by 10 days to close Jan 23rd at latest
- Discussion on
 - WRC2003 preparations and changes in DFS
 - Harmonized Standard
- Comment resolution
- Meeting minutes in 11-03-040r0

SB status

- 45 comments by Jan 13
 - 25 technical
 - 20 editorial
- All comments reviewed
 - tentative resolutions found in 11-03-137
- Still 11 votes needed for 75% return rate
(votes received by Jan 16 late night)

What next?

- Ad hoc teleconference(s) to
 - review any possible comments received during the extended ballot
 - review the revised draft upon tentative resolutions

First one on Feb 13, 2003, 2PM EST

March 2003 Objectives

- Process Sponsor ballot comments
 - Submit the updated draft to recirculation of Sponsor ballot
- Update on progress in WRC-03 preparations and Harmonized Standard

Thank You!