IEEE P802.11
Wireless LANs

Approved Minutes of the IEEE P802.11 Full Working Group

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Abstract

Minutes of the 802.11 full working group.

Opening Plenary: July 18, 2005

1.1. Introduction

1.1.1. Meeting called to order by Stuart J. Kerry at 13:30.

1.1.2. The agenda of the 92nd session of 802.11 is in doc: IEEE 11-05-0452r2.

1.1.2.1. .

1.1.3. Secretary – Tim Godfrey

1.1.4. Officers and Chairs of 802.11:

IEEE 802.11 WORKING GROUP OFFICERS

Name	Position	Work Phone	eMail
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1.2. Approval of the Agenda

1.2.1. Stuart J. Kerry reviews the agenda for the group

1.2.2. Changes to the agenda from the posted version:

1.2.2.1. Terry Cole will not be here. The WG editor will be Simon Barber.

1.2.2.2. Peter Ecclesine will be late arriving here. Jan Kruys will be the CBP chair until Peter arrives.

1.2.2.3. Geoff Thomson will attend JTC1-SC6 meeting.

1.2.2.4. On Wednesday, the WiFi Liaison will be done by Clint Chaplin.

1.2.2.5. Addition of agenda items to discuss 802.1am PAR, and 802 P&P.

1.2.2.6. The amended version will be r3.

1.2.3. The joint agenda is approved by Unanimous consent.

1.3. Minutes for May 2005 joint meeting

1.3.1. Any matters from the minutes?

1.3.1.1. The liaison to TIA has been amended to be TIA, and not TIA-TR42.

1.3.2. The minutes from Cairns are approved with Unanimous consent.

1.4. Meeting rules

1.4.1. Rules regarding telephones, audio/video recording and photographs are reviewed.

1.5. Antitrust statement.

1.5.1. Stuart J. Kerry reads the following statement to the body:

ANTI-TRUST STATEMENT

Each Member acknowledges that the Members are committed to fostering competition in the development of new products and services. The Members further acknowledge that they or their employers may compete with one another in various lines of business and that it is therefore imperative that they act in a manner which does not violate any applicable antitrust laws and regulations.

Without limiting the generality of the foregoing, the Members acknowledge that the Members will not, in meetings or informal gatherings associated therewith, discuss issues relating to product pricing, methods or channels of product distribution, any division of markets, or allocation of customers or any other topic which should not be discussed among competitors in the context of standards meetings or informal gatherings associated therewith.

Accordingly, each individual Member sponsor hereby assumes the responsibility to behave in an appropriate manner in this respect and to limit their discussions to subjects that relate to the purposes of the IEEE Standards making process and adhere to IEEE policies and procedures, whether or not such discussions take place during formal meetings or informal gatherings associated with IEEE standards meetings.

1.6. New members

1.6.1. There are 43 members attending for the first time.

1.7. Treasurers Report

1.7.1. Al Petrick presents document 05/0700r0, on the joint 802.11/802.15 treasury.

1.7.1.1. Completed the 2004 audit report for the IEEE.

1.7.1.2. Income was $907K, Expenses $816K, loss of $76K.

1.7.1.3. Bank balance at end of 2004: $64K.

1.7.1.4. Cairns financials: 523 attendees. $442K AU income. Net loss of $23K, actual loss of $14K AU.

1.7.1.5. As of July, we have $101K cash on hand.

1.7.1.6. Garden Grove meeting budget. Registration is $450. Expect expenses of $331K

1.8. Review of Policies and Procedures

1.8.1. Al Petrick presents document 04/424r6 to the body.

1.8.2. Review of working group officers and duties for all wireless working groups. Members are encouraged to wear their voting tokens. A new unique identifier number is now on the badge. Voting rights are also indicated by a printed indication on the badge.

1.8.3. Review of operating policies and procedures, registration, payment of fees. Our P&P is in 04/510r0, which is posted on the web site. Roberts Rules are revision 10 (Gold Book)

1.8.4. Review of rules against photographs, tape recording, and media briefing.

1.8.5. Review of attendance recording process, and contact information updating procedures.

1.8.5.1. There are special attendance recording procedures in effect for this meeting due to the attendance recording software.

1.8.6. Review of voting rights and process for obtaining voting rights.

1.8.7. Review of process and requirements for gaining and keeping voting rights.

1.8.8. Membership representation and anti-trust laws are reviewed.

1.8.9. Al Petrick reads the following slide to the body:

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

Approved by IEEE-SA Standards Board – December 2002

1.8.10.

1.8.11. Al Petrick reads the following text to the body regarding IEEE patent policy:

IEEE-SA Standards Board Bylaws on Patents in Standards

6. Patents

IEEE standards may include the known use of essential patents, and 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.

Approved by IEEE-SA Standards Board –, March 2003, May 2005

1.8.12.

1.8.12.1. Discussion

1.8.12.1.1. The affirmation in May 2005 did not make any changes

1.8.13. Review of copyright status of submissions

1.8.14. Review of meeting etiquette.

1.8.15. Stuart J. Kerry asks if there are any questions about patent policy.

1.8.15.1. None.

1.9. IEEE SA Letters of Assurance

1.9.1. Stuart Kerry asks for new LOAs

1.9.1.1. None from the floor.

1.9.1.2. Stuart announces that there is one outstanding LOA for 802.11e. It has been sent twice with no response.

1.10. Announcements

1.10.1. Members are encouraged to not leave personal items unattended.

1.11. Interim Meetings

1.11.1. May 14 – 19, 2006 will be at Hyatt Regency in Jacksonville, FL. Contract is in place.

1.11.2. September 2006

1.11.2.1. Option 1, Sept 10-15. Hilton Prague at $210 Euro per night. This rate has not been negotiated yet.

1.11.2.2. Option 2, Sept 17-22. Istanbul, Turkey. Swishotel, $180 euros.

1.11.2.3. Stuart J. Kerry states that there are member concerns with Turkey. The leadership currently prefers Prague over Istanbul.

1.11.2.4. Discussion – can we consider other venues as well? Can we move the venues to more reachable locations.

1.11.2.4.1. Stuart suggests that we have a fixed set of 6 locations. However, we have to proceed with 2006 as is. But we could consider fixed locations in 2007.

1.11.2.4.2. Suggests moving straw poll until Wednesday.

1.11.2.4.3. In favor of Prague. Europe has good connections to Prague.

1.11.2.4.4. A member from Turkey notes that the infrastructure of Turkey is very good, and security is not such an issue.

1.11.2.4.5. Straw Poll: Prague: 142 Istanbul: 56 Neither: 42

1.11.2.5. The WG thanks Samsung for their offer of hosting.

1.11.3. Discussion

1.11.3.1. Why do we have to have our May meetings on Mothers Day?

1.11.3.1.1. Stuart takes it under advisement.

1.11.3.2. Why was Samsungs offer for Korea not considered? We found these new locations were better offers. We will consider Korea for a future meeting.

1.12. Report on ExCom Activities

1.12.1. Stuart J. Kerry presents the report in Doc 05/0699

1.12.1.1. Anti Trust issues will be further discussed on Tuesday at 5pm in Grand C.

1.12.1.2. The RFP for software for attendance and document management was discussed.

1.12.1.3. The formation of the network committee was presented to ExCom and accepted. Will have further discussion at 3pm Tuesday.

1.13. Tutorial

1.13.1. Secure Device ID

1.13.2. Update on Bridging

1.13.3. Cognitive Radios

1.13.4. Energy Consumption of network devices

1.13.5. EMS panel on IEEE 802 standards process

1.14. Attendance Recording

1.14.1. We will follow the same general process as in Cairns.

1.14.2. Sign up once a day, and indicate your attendance for the whole day.

1.14.3. Sign in for AM, PM, and evening

1.14.4. Only sign in for 802.11 sessions, not tutorials or 802 plenary meetings.

1.14.5. There will be no opportunity to make corrections later. Don't forget to sign in during the hours of 7:30 AM to 6PM.

1.14.6. Only sign in for yourself.

1.15. Documents

1.15.1. Upload documents to Internet 802wirelessworld.com.

1.15.2. To conserve bandwidth, we have put documents on the local server at 10.0.0.10.

1.16. Timeline

1.16.1. There have been no changes to the timeline since May. This was agreed by the WG chairs last night.

1.17. WG Editors Report

1.17.1. Simon Barber presents document 04/044r4

1.17.2. A new CD with a complete set of standards is available for sale at IEEE.ORG.

1.17.3. Status of ISO approval process

1.17.4. There will be a TG technical editors meeting tomorrow at 07:00.

1.18. WG Policies and Procedures Update

1.18.1. Al Petrick presents 05/0457r0.

1.18.2. Current P&P is in 04/510r0. Changes have been solicited in July – November 2004.

1.18.3. Proposed changes are in 05/094r0.

1.18.4. Red-line document is 05/0456r0

1.18.5. We have notified that voting would be done at this meeting.

1.18.6. Move that document 05/0456r0 becomes the policies and procedures for IEEE 802.11 WG, and be posted on the IEEE 802.11 WG website after the close of the IEEE 802.11 WG July 2005 plenary.

1.18.6.1. Moved Al Petrick

1.18.6.2. Second Bruce Kraemer.

1.18.6.3. Vote: Motion passes 121 : 1 : 30.

1.19. Task Group Reports

1.19.1. PSC – Nanci Vogtli

1.19.1.1. Will consider making changes to Publicity Committee. Looking for input from WG. Have moved the time to Tuesday at 1:30PM. Will update events calendar. Considering canceling sessions due to lack of interest.

1.19.2. WNG – TK Tan

1.19.2.1. Two sessions this week. Will have 3 presentations: one on TGu, and on 802.1am PAR discussions.

1.19.3. TGe – Srini Kandala for John Fakatselis

1.19.3.1. There are no comments to respond to. We have one session Wednesday, and will forward draft to RevCom.

1.19.4. TGk – Richard Paine

1.19.4.1. Agenda in 05/689r1. Held teleconferences and held ad-hoc meetings to resolve comments. Will release draft 2.1 and draft 2.2 this week. Will vote on measurements that are candidates for removal. Finalizing LB73 comments, and hope for new LB this week.

1.19.4.2. TGm – Bob O'Hara

1.19.4.3. There are no new requests for the ANA. TGm LB 75 on D2.0 closed yesterday. There are some comments that will be resolved this week. Draft 3.0 will have a recirculation later this week. First meeting will be this afternoon in Conf J of Pacific Conf Center.

1.19.4.4. TGn – Bruce Kraemer

1.19.4.5. Held a confirmation vote 2 in May, which failed, resetting the process to 3 proposals. We tentatively planned to restart the downselection procedure, but plan a different process. The groups have been working together. Will discuss at 4pm today.

1.19.4.6. TGp – Lee Armstrong

1.19.4.7. Have been working on comments on draft. Most are resolved. Plan to go to LB at the end of this week.

1.19.4.8. Discussion.

1.19.4.9. What is the current draft? It is 0.22. It is a pre-Letter Ballot draft.

1.19.5. TGr – Clint Chaplin

1.19.5.1. Working on a preliminary draft. Will refine this meeting, and consider motions on changes. May have LB out of September meeting.

1.19.6. TGs – Donald Eastlake

1.19.6.1. TGs has issued Call for Proposals, and submissions are in. There will be a low-hurdle ballot on Thursday afternoon.

1.19.7. TGT – Charles Wright

1.19.7.1. One proposal has been accepted into the draft. D0.2 is on the website. Will have technical presentations. May be able to incorporate everything into draft before September meeting for an internal review ballot (within the task group).

1.19.8. TGu – Stephen McCann

1.19.8.1. Meeting in Pacific Room K. Will review requirements document, and ratify it. Looking for technical editor.

1.19.9. TGv – Pat Calhoun

1.19.9.1. Will continue considering features in document 05/224r4 and selecting requirements.

1.19.10. TGw – Jesse Walker

1.19.10.1. Meeting in 4 sessions this week. Requirements document in 05/521. Will adopt by vote on Thursday, and then issue CFP.

1.19.11. JTC1-SC6 – Geoff Thompson

1.19.11.1. Presents a history of internationalization of 802 standards, and activities with ISO. Document Number 05/783r0

1.19.11.2. Jesse Walker states that there will be a meeting in Beijing in August to see if there is any way to harmonize 802.11i and WAPI. Any positive outcome will be continued at JC6 meetings in late August in France.

1.19.11.3. Stuart J. Kerry thanks Geoff Thompson for his presence and presentation.

1.20. PARs

1.20.1. There are 5 802.1 PARs, one from 802.3, and our 802.11Y.

1.20.1.1. 802.1ao – no comments

1.20.1.2. 802.1ap – VLAN MIB 0 no comments

1.20.1.3. 802.1ac – no comments

1.20.1.4. 802.3at – no comments

1.20.1.5. Andrew Myles states that we have until tomorrow to provide input to 802.1. Suggests we provide 05/635r0 as an input on 802.1am for 802.1's consideration. Hopefully they will provide input back to us.

1.20.1.6. Roger Durand notes that it should be understood that the input is on behalf of an individual, and not the position of the WG.

1.20.1.7. Andrew agrees that it is input from 802.11, but does not necessarily reflect the view of 802.11.

1.20.2. 802.11Y

1.20.2.1. Jan Kruys substituting. The CBP SG was planning to vote on PAR and 5C, but it is now inappropriate. The FCC issued R&O on 3.6GHz band. Eight petitions for reconsideration have been filed - the FCC could take several actions, and we don't know what they will do. The suggestion is to delay the vote on the PAR and 5C until November 2005.

1.20.2.2. Motion to remove the 802.11 TGy PAR and Five Criteria from the 802 Executive Committee agenda for July 2005.

1.20.2.2.1. Motion ID 489

1.20.2.2.2. Discussion

1.20.2.2.2.1. Do we want to withdraw the PAR or just delay the vote.

1.20.2.2.3. Moved Jan Kruys

1.20.2.2.4. Second Harry Worstell

1.20.2.2.5. Vote: Motion passes 132 : 2 : 10

1.20.2.3. Motion to extend the CBP study group up to and including the November 2005 plenary.

1.20.2.3.1. Moved Harry Worstell

1.20.2.3.2. Second Clint Chaplin

1.20.2.3.3. Motion ID 491

1.20.2.3.4. Vote: Motion passes 103 : 0 : 12

1.21. Announcements

1.21.1. Tuesday evening does count for 802.11 if you attend 802.11 sessions.

1.21.1.1. Previously we have given attendance credit for 802.11 tutorials. Harry states that we haven't given credit. Stuart J. Kerry reviews the Policies and Procedures.

1.21.1.2. Harry says to mark the evening session with T for Tutorial, and we will work out the ruling by the precedence that has been set.

1.21.2. We have 546 voters, 68 potential voters, there are 67 nearly voters, and 315 aspirants.

1.21.3. There are 463 people in the room.

1.22. Recess

2. Wednesday, July 20, 2005

2.1. Opening

2.1.1. The meeting is called to order at 10:30 by Stuart J. Kerry.

2.1.2. The agenda is currently at r3, any changes will result in r4.

2.1.3. Paul Nicolich will be attending, but will be delayed.

2.2. Modification of the agenda

2.2.1. Stuart J. Kerry reviews the current agenda (r3)

2.2.2. Are there any modification? None

2.2.3. The agenda is approved with Unanimous consent.

2.3. Letters of Assurance

2.3.1. Stuart J. Kerry asks for any new LOAs.

2.3.2. He notes that there is an outstanding request for an LOA on 802.11e, but there has been no reply after three mailed letters. Stuart has notified PATCOM that we have done due diligence to obtain the LOA. If 802.11e forwards to RevCom for publication, we will notify the group that Patcom will have to resolve the LOA issue. PATCOM will follow up with a registered letter.

2.4. Attendance

2.4.1. We are on a manual system. Sign in at the 802 Concierge desk once any time during the 9 hour window of 8am to 5pm. Any complaints or issues, please see Harry Worstell.

2.5. Announcements

2.5.1. CAC meeting Thursday at 7pm

2.5.2. There will be a book signing at 3 to 3:30.

2.5.3. There could be a motion coming on Friday out of the wireless architecture ad-hoc that took place on Monday.

2.5.4. Charles Wright, Chair of TGT, has added a fixed time agenda item at 4pm today to vote on proposals that have been brought forward to date.

2.5.5. Task Group S will have a low-hurdle vote Thursday at 14:39.

2.5.6. There are 313 people in the room

2.6. 802 Policies and Procedures

2.6.1. Matthew Sherman, 802 vice chair, presents an update on changes to the 802 policies and procedures. There are changes on 802 membership rules. Members may visit the 802 executive committee email archive to see the results. There is a new change regarding term limits. Matthew will accept input and comments from members. He requests more active participation from 802.11.

2.6.1.1. Stuart J. Kerry states that an 802 ExCom liaison report will be added to the Wednesday agenda in the future.

2.6.2. The rules for gaining and losing membership will change. It will be easier to lose membership, to help removing inactive members. The new rules would take effect in November.

2.6.3. Discussion

2.6.3.1. Where is the ExCom email archive? How is it accessed?

2.6.3.2. Concerned about tightening up the losing of voting rights. This could impact members of multiple groups. Matthew believes it is still possible to maintain membership in two groups. Understands the difficulty but there are number of issues to balance.

2.6.3.3. Stuart J. Kerry states that concerns should be brought to any ExCom member.

2.6.3.4. Negative about the changes. Would prefer to see a straw poll to see how the membership feels, on the record.

2.6.3.5. Stuart J. Kerry answers that the changes are on the reflector, and all the information is passed on to our group.

2.6.3.6. Matthew Sherman will directly send materials to the 802.11 reflector in the future.

2.6.3.7. Are straw polls appropriate? Stuart J. Kerry notes that there have been few replies and there are so many changes. Comments should be made directly to Stuart and Matthew to be relayed to the ExCom.

2.6.3.8. The email archive is in the 802 site, under 802 Policies and Procedures. There is a link for new SEC email archives.

2.6.3.9. The SEC membership feels that their memberships have primary loyalty to the SEC and not their representative working groups. Requests that the SEC become more of a representative body.

2.6.3.10. Stuart J. Kerry states that he does indeed support the members of 802.11 in the SEC.

2.6.3.11. Since there are so many emails in the SEC archive, can they be transferred to the 802.11 site? Yes.

2.7. 802 Chair discussion

2.7.1. Paul Nicolich discusses the use of the opening times on Monday clear of WG meetings, and the general network situation. However, he will address any issues from the WG.

2.7.2. Regarding the network issues – we understand that things are better since Monday. We are working closely to address any issues, and keep the EC members updated on status on a daily basis.

2.7.3. Discussion from the floor

2.7.3.1. While the network is better, we still don't have all the software and tools. We have to have 5 9s reliability. Feels that the network access is an essential requirement, like water and electricity.

2.7.3.2. Paul notes that the attendance and document management software is currently on a Working Group basis, and not controlled by ExCom.

2.7.3.3. Harry Worstell notes that we have activities going on to deal with these issues. The first contact is the helpdesk. Beyond that we have a network committee that will deal with issues as well.

2.7.3.4. Why is it always a scramble on Monday morning. It seems the network is never ready. We should better maintain a history. We will develop tests to load and test the network on Saturday and Sunday. Also we need to verify the wireless coverage in advance.

2.7.3.5. Having problems downloading from 802wirelessworld. When we have good capacity to the outside world, we have more resiliency. We do have a fat pipe. We have some bottleneck in the hotel infrastructure. There still may be AP issues.

2.7.3.6. The wired Ethernet connections and 802.11a seem to be quick. The congestion seems to be in 802.11b/g. Proposes that wired Ethernet be installed in the rooms.

2.7.3.7. Paul also suggest that 802.11a cards be available for borrowing at these meetings.

2.7.3.8. There is still an issue with VPN and NAT. Steven Shroedl states that our servers are being upgraded to fully support VPN over NAT.

2.7.3.9. Suggest that the IEEE gets a globally routable IP address space and move it for each meeting.

2.7.3.10. What is the status for documents and searching.

2.7.3.11. Feels that the mindset is not adequate for the service level required. We must have hot-swap and redundancy. We have to properly budget to ensure the needed service quality.

2.7.3.12. Different groups having different document tools is a problem. The EC should provide a common set of tools to reduce confusion. (applause)

2.7.3.13. Paul agrees. We plan to broaden the use of document tools until every WG is using the same set.

2.7.3.14. We need to work a way to not have to locate servers at every meeting. But sometimes a big pipe is not available. But there are products where we could have a local cache for files. Would solve the issue of confusion of where to find files here an when not in session.

2.7.3.15. What is the problem with getting bandwidth in a hotel? Has served larger meetings without these problems. The problem has been the carrier. It varies location to location.

2.7.3.16. Returning to the topic of meetings scheduled during opening plenary and EC meetings. Please describe the utility of the 802 opening plenary, and how does the 802 chair have the authority to set WG agendas. Paul believes that the 802 P&P specifies the opening plenary, which is a gathering of the whole body. It should be exclusive. The utility is the single time during the entire week to allow members to understand what is going on across all of 802.

2.7.3.17. When was the last time that the ExCom asked the membership of 802 if they found utility in the opening plenary? It has not been posed to the membership.

2.7.3.18. Stuart J. Kerry proposes a straw poll: Do members believe the 802 opening plenary is useful?

2.7.3.18.1. Yes: about 50%

2.7.3.18.2. No: about 50%

2.7.3.18.3. None of the above: small group

2.7.3.19. Notes that the opening plenary is not a meeting, but just presentations, which could be sent out by email. It should be a real meeting with interchange.

2.7.3.20. Stuart J. Kerry also suggest that the social could be technical event with food. And the Opening Plenary could be a “meet the chairs” time with breakfast.

2.7.3.21. Paul notes that the interchange between ExCom and the body needs to be increased. Agrees that the opening plenary could be more interactive.

2.7.3.22. There were reactions to the proposed 802 P&P changes. The retention of voting rights is an issue. Related to that, there is no attendance credit for attending any LMSC sponsored activities like the plenary and tutorial. Maybe there could be some reciprocity?

2.7.4. Stuart J. Kerry notes that the anti-trust presentation from last night will be sent to the 802.11 membership via the reflector

2.7.5. We have given up one evening meeting session for tutorials. Please consider changing the formatting of the tutorial evenings.

2.7.6. Stuart J. Kerry thanks Paul for joining us. There is another meeting on Thursday 4-6pm. Any member can visit with Paul at that time in Boardroom A. Steve Mills (Chair, IEEE SA) and Karen Kinney (managing director IEEE-SA) will also be there.

2.8. Liaison Reports

2.8.1. 802.18 – Denis Kuahara

2.8.1.1. Document 05/747r0

2.8.1.2. Radio Regulatory TAG – liaisoning to international regulatory agencies. Discussed with various groups regarding FCC actions and comments. Finalizing P&P for the RR TAG.

2.8.1.3. Need volunteers to work on ITU-R response, regarding updating of our position on RLANs. This will be reviewed this afternoon.

2.8.1.4. In the future, RR-TAG will continue to review consultations from regulators.

2.8.2. 802.19 – Sheung Li

2.8.2.1. Coexistence assurance. The following 802.11 task groups are exempt: TGe, TGk, m , p, r , t and u.

2.8.2.2. v and w are responsible for a coex statement

2.8.2.3. n and s will need a full coex analysis.

2.8.2.4. The analysis is for all wireless standards operating in the same band. 802.19 is reviewing radio characteristics of all relevant radio technologies

2.8.2.5. Stuart J. Kerry notes that both TGv and TGu state that their standards will address management or security only and not have coexistence issues.

2.8.2.6. Sheung will forward these statements back to 802.19

2.8.2.7. Discussion from the floor

2.8.2.7.1. Have looked at 802.19 documents. Where are the current document for this week? They will be posted to the 802.19 server. IEEE802.org /19. We will make local folders at 10.0.0.10.

2.8.3. 802.22 – Peter Ecclesine

2.8.3.1. Working on use of TV bands. Preparing for an ex-parte meeting with FCC. Will ask for partial technology presentations from the FCC, based on requirements that have been developed.

2.8.4. 802 Architecture – Roger Durand

2.8.4.1. Document 05/739. Meeting common issues across all of 802. There are action items allocated to 802.11 – bridge architecture (updating table without upstream packet), adding location as a new dimension for forwarding tables. 4 address field usage in 802.11. Issues with 48 bit vs. 64 bit MAC addresses. 802.1x virtual ports issues – 802.1af will look into this. QoS classes of service across all of 802. Signal and power management across groups: 802.1am.

2.8.4.2. Tom Seip asked to relay that the wireless architecture group (Monday AM) had a straw poll to form a study group . (document 05/755, and 05/756)

2.8.5. WiFi Alliance – Clint Chaplin

2.8.5.1. Document 05/753

2.8.5.2. The work of WiFi alliance and task groups is increasing.

2.8.5.3. Status of each TG

2.8.5.4. Next meeting in Beijing in Q3.

2.8.5.5. Will move to a 3 meeting per year schedule starting in 2006.

2.8.6. IETF – Dorothy Stanley

2.8.6.1. Document 05/741r0

2.8.6.2. The new item is a review of Media Independent pre-authentication. 802.11u has created a document in of 05/558r3 in response. This will be requested to be forwarded to the IETF.

2.8.6.3. Move the 802.11 approve the liaison document 05/558r3 and request that Stuart J. Kerry, Chair 802.11

2.8.6.3.1. Moved Dorothy

2.8.6.3.2. Second Clint

2.8.6.3.3. Motion approved by Unanimous consent.

2.8.7. MMAC – Inoue-san

2.8.7.1. Report in document 05/738

2.8.7.2. Review of MMAC activities mission

2.8.7.3. Stuart J. Kerry thanks Inoue-san for his services as liaison, as he may be moving to a different job soon.

2.9. Announcements

2.9.1. Stuart J. Kerry announces that we are moving to the discussion on the 802.11am PAR. No objections to the agenda change.

2.10. Discussion on 802.1am PAR

2.10.1. TK Tan, WNG Chair, introduces Tony Jefree, Chair of 802.1.

2.10.2. Document 05/684r1

2.10.3. There were straw polls taken in the WNG SC regarding 802.1am.

2.10.4. Straw Poll 1

2.10.4.1. Recommendation from IEEE 802.11 WNG SC to IEEE 802.11 WG that the IEEE 802.1AM PAR approval is postponed. It would like to see a study group created within IEEE 802.1, with the intention of revising this PAR to address the RF management issue, ensuring that stakeholders within the wireless groups are invited. Such meetings should be collocated with the IEEE 802 wireless interims.

2.10.4.2. IEEE 802.11 should therefore invite IEEE 802.1 to participate in their interims.

2.10.4.3. Straw poll result : 23, 4, 2

2.10.5. Straw Poll 2

2.10.5.1. Recommendation from IEEE 802.11 WNG SC to IEEE 802.11 WG that it would like to see a study group created within IEEE 802.1, with the intention of revising the approved IEEE 802.1AM PAR to address the RF management issue, ensuring that stakeholders within the wireless groups are invited. Such meetings should be collocated with the IEEE 802 wireless interims.

2.10.5.2. IEEE 802.11 should therefore invite IEEE 802.1 to participate in their interims.

2.10.5.3. Straw poll result: 7, 13, 7

2.10.6. Discussion

2.10.6.1. The key difference is that the PAR is postponed, and a SG be formed to work on a new PAR.

2.10.6.2. Tony Jefree states that if this PAR is approved, there is always an opportunity to revise the PAR in the normal way. A study group is not required to do that. Doesn't see the purpose of having an SG revise the PAR. It should be the TG that owns the project. 802.1 will consider co-locating with the wireless groups for Interim meetings.

2.10.6.3. Stuart J. Kerry notes that there is space at the September location to accommodate 802.1.

2.10.7. Questions from the floor

2.10.7.1. Disagrees that there is no reason to delay the PAR. There was a straw poll in San Antonio showing that people were unhappy with the tutorial. In Cairns, the majority of members wanted to reject the 802.1am PAR. There is a need to reconsider the PAR with the wireless groups involved. Starting the TG now will not enable the appropriate input from the wireless groups.

2.10.7.2. Concerns that the wireless groups have been involved in the PAR and do not have joint ownership.

2.10.7.3. Tony feels that the joint ownership can be achieved in the 802.1 task group.

2.10.7.4. This PAR originated from an interim meeting of 802.1. It has not had adequate review by the wireless working groups. It is very unusual to see PARs after their approval.

2.10.7.5. Issue with the 5 Criteria presented along with the PAR. There is no technical justification of the feasibility of measuring all wireless technologies. We don't have adequate measurements to enable common management across all of 802.

2.10.7.6. This is a cultural issue between 802.1 and 802.11. The WNG has created Study Groups to form PAR and 5Cs.

2.10.7.7. Feels that objections are procedural and not on the content.

2.10.7.8. Suggests that the 802.1am PAR be more detailed and narrower scope. This is an architectural issue.

2.10.7.9. There is an issue with attendance credit between 802.11 and 802.1. We can resolve that though to provide mutual credit.

2.10.7.10. There is a perception within this group that we are not involved enough. Advice is to consider the study group, just to send a message the 802.1 is listening to our concerns.

2.10.7.11. This is an issue to be addressed across multiple wireless standards. We need to take input from the wireless groups at joint meetings over the next few meetings.

2.10.7.12. Believes that there are technical issues. They were not formally passed to 802.1, but 802.1 was aware of them. They should be considered.

2.10.7.13. There was an extensive technical discussion during WNG. There is a focus on channel and transmit power. We are trying to understand the scope of the PAR, but we haven't been able to get the information.

2.10.7.14. 802.1 didn't go into great detail about parameters intentionally. The intent was to look for input from wireless groups.

2.10.7.15. Is there more opportunity to provide input? This afternoon there will be discussion regarding the PAR. Several members will attend this session.

2.10.7.16. We are not sure the PAR is technically feasible due to the number of bands and modulation techniques. There is no guarantee that wireless networks have a common management backplane.

2.11. Recess at 12:30PM

3. Friday, July 22, 2005

3.1. Opening

3.1.1. The meeting is called to order at 8:00 by Stuart J. Kerry.

3.2. Review of the Agenda

3.2.1. Current version is r4

3.2.2. There is a new item for the Technical Editors

3.2.3. There is a slot for motions for the technical editors and the 802.1am PAR.

3.2.4. In old business, we pick up the liaison reports and other items that are left from Wednesday.

3.3. Approval of the agenda

3.3.1. Any other items? None

3.3.2. The revision is approved by Unanimous consent.

3.3.3. There are 325 people in the room

3.4. IEEE Letters of Assurance

3.4.1. Are there any new LOAs for the chair? None

3.4.2. Do the members understand the policy or have any questions? No comments.

3.5. Meeting Reports

3.5.1. Minutes and Reports should be provided by July 25th to be posted on the web site.

3.6. Announcements

3.6.1. None

3.7. Documentation update

3.7.1. Harry notes that the document lists on 802wirelessworld is not working. However the FTP download function is still functional. Also document number issuance is still working.

3.7.2. We are maintaining backups of documents in case of total failure.

3.8. Policies and Procedures

3.8.1. No Updates

3.9. Reports

3.9.1. Technical Editor Report

3.9.1.1. Simon Barber presents a report in document 05/804r0

3.9.1.2. Concerns about Framemaker templates

3.9.1.3. An open issue with the relative timing of 802.11e and the 802.11ma revision that does not include 802.11e. There is some small divergence that is yet to be resolved.

3.9.1.4. An editor has not selected an editor. Bruce Kraemer states that the selection has been deferred until a single proposal has been confirmed. Expecting November.

3.9.2. Straw Poll on location

3.9.2.1. Stuart J. Kerry ask the body if they like the hotel and location for a meeting.

3.9.2.2. Was the location OK? Nearly Unanimous consent

3.9.2.3. Was the network OK? Few agree.

3.9.2.4. Would you come back here? No disagreement.

3.9.3. Publicity

3.9.3.1. Nanci Vogtli reviews the WG timeline. It has been updated this week. It will be posted to the website early next week.

3.9.3.1.1. There have been changes in projected dates for completion of task group activities.

3.9.3.1.2. TGv pushed out several months. A few other groups have minor modifications.

3.9.3.1.3. Any questions? None

3.9.3.2. Nanci presents the PSC closing report in document 05/0802r0.

3.9.3.2.1. TGk is beginning a marketing/education campaign.

3.9.3.2.2. There will no longer be a dedicated meeting time slot during our sessions for PSC. Members can contact Nanci for any specific publicity related actions. PSC will function in more of an advisory role.

3.9.3.2.3. The calendar of events has been updated and will be posted to the web site.

3.9.3.3. . Stuart reiterates that the PSC meeting will not take place in Garden Grove.

3.9.4. WNG

3.9.4.1. Stephen McCann presents the WNG report in 05/0803r0.

3.9.4.2. There were discussions and straw polls regarding the 802.1am PAR. 802.11 WNG felt that the 802.1am PAR should be postponed to allow joint work to revise the PAR.

3.9.4.3. There was a submission regarding AP to AP protocols. The group unanimously felt that standardization of AP to AP protocols should be standardized.

3.9.4.4. Stuart J. Kerry notes that there is a possible tutorial in November regarding 1Gbit wireless LANs. The Worldwide Research Forum has requested the tutorial.

3.9.5. TGe

3.9.5.1. Srini Kandala presents 05/772r0

3.9.5.2. The TG has finished recirculations. No changes were made to the draft.

3.9.5.3. The Task Group unanimously passed a motion to forward 802.11e-D13 to RevCom.

3.9.6. TGk

3.9.6.1. Richard Paine presents 05/799r0

3.9.6.2. TGk continued comment resolution on LB73

3.9.6.3. There are major improvements in reducing technical issues resulting in comments.

3.9.6.4. Hidden Stations, and medium sense time histogram have been removed.

3.9.6.5. Expect a new letter ballot in September.

3.9.6.6. Will continue to hold weekly teleconferences, and an ad-hoc meeting in September before the Interim meeting.

3.9.7. TGm / ANA

3.9.7.1. Bob O'Hara presents document 05/708r0

3.9.7.2. There are no new ANA requests or actions

3.9.7.3. TGm continued to process technical comments on the last ballot.

3.9.7.4. Will recirculate the draft, and request conditional approval to go to sponsor ballot.

3.9.7.5. All comments have been processed , with resolutions in document 05/709.

3.9.7.6. Discussion

3.9.7.6.1. An issue came up in TGk regarding action category. Was the ANA responsible for issuing action categories? Bob feels that any resource such as this should be handled by the ANA.

3.9.7.7. The official results of Letter Ballot 75 are 407 ballots cast , 387 approve, 26 disapprove, 19 abstain. 93.7% approve, 79.7% return rate.

3.9.8. TGn

3.9.8.1. Bruce Kraemer presents document 05/760r0

3.9.8.2. The downselection process has been delayed until the task group receives a merged proposal. The majority of the TG approved this action.

3.9.8.3. The TG shortened the timeslot usage during the week, and work went on off-site.

3.9.8.4. We considered modifications of functional requirements to address single-stream modes. This motion was passed nearly unanimously. The document 05/813 contains the new Functional Requirements.

3.9.8.5. No teleconferences will be held between now and September.

3.9.8.6. The partial merged proposals draft will be posted and announced by Monday September 12th.

3.9.9. TGp

3.9.9.1. Lee Armstrong presents document 05/801r0

3.9.9.2. The issue regarding WRSS was resolved with new wording.

3.9.9.3. The draft was reviewed, but was not approved for letter ballot.

3.9.9.4. The current draft is D0.22

3.9.9.5. There are still a few open comments.

3.9.9.6. TGp will produce a new draft by August 5th, and resolve any new comments in September, and hopefully issue a letter ballot.

3.9.10. TGr

3.9.10.1. Clint Chaplin presents document 05/0805r0

3.9.10.2. There were many presentations given this week. About half of them were adopted and accepted into the draft.

3.9.10.3. Will continue with teleconferences.

3.9.10.4. There were 4 different draft versions during the week.

3.9.10.5. The current draft is 0.05 which will be posted in the next few days.

3.9.10.6. The minutes are 05/670r0

3.9.10.7. Planning the first letter ballot in November.

3.9.11. TGs

3.9.11.1. Donald Eastlake presents document 05/0800r0

3.9.11.2. There were 15 proposals presented at this meeting.

3.9.11.3. There was a low hurdle ballot on Thursday. There were 3 proposals eliminated.

3.9.11.4. After mergers, we expect to have 9 proposals going into the September meeting.

3.9.11.5. In the ballot, Proposals F, D, and O were eliminated.

3.9.11.6. There will be one teleconference. There will not be any ad-hoc meetings.

3.9.11.7. There will be a down select vote in September.

3.9.12. TGT

3.9.12.1. Charles Wright presents document 05/775r1

3.9.12.2. There were 9 presentations, and two were accepted for inclusion into the draft.

3.9.12.3. Will issue draft D0.3 within a few weeks.

3.9.13. Did not start task group internal review.

3.9.14. TGu

3.9.14.1. Stephen McCann presents document 05/797r0

3.9.14.2. The group adopted 29 functional requirements.

3.9.14.3. There will be 2 teleconferences

3.9.14.4. The group has issued the revised requirements document

3.9.14.5. Teleconferences will start next Thursday.

3.9.15. TGv

3.9.15.1. Pat Calhoun presents document 05/0644r3

3.9.15.2. Considered requirements and assigned them to owners. Unassigned requirements are set aside until an owner comes forward.

3.9.15.3. There were 5 submissions.

3.9.15.4. The current timeline plan is to have call for text in November to address objectives. Internal review in November 06, and first letter ballot in March 07.

3.9.15.5. Objectives are in 05/642r1

3.9.15.6. Document 796r0 contains pending work items.

3.9.15.7. Stuart sets aside the special orders to continue the reports

3.9.15.8. No objection from the body

3.9.16. TGw

3.9.16.1. Jesse Walker presents 05/0806r0

3.9.16.2. In September will have summary presentations of proposals, and continue to work on requirements.

3.9.17. CBP

3.9.17.1. Peter Ecclesine presents Report in 05/751r2

3.9.17.2. The SG withdrew the PAR and 5C that were submitted.

3.9.17.3. Reviewed activity at the FCC.

3.9.17.4. There were calls for submissions and presentations, that went to both 802.11 and 802.16 reflectors.

3.9.17.5. There was one session.

3.9.17.6. The group is waiting for FCC action of 05-56. There was a joint meeting with 16h and 802.18. The FCC had opened comments on petitions on reconsideration and replies. These are 15 day comment periods and an 10 day reply period.

3.9.17.7. CBP will have bi-weekly teleconferences.

3.9.17.8. The CBP SG PAR and 5C will be put on the ExCom agenda for November.

3.9.17.9. There was a motion from 802.16h to study coexisting operation in the 3650 band to be operated in 802.19.

3.9.17.10. Discussion

3.9.17.10.1. Why are we not indicating our interest in the 3650 band to the FCC now? There was no time in March to file to the FCC. This is the first opportunity. There are 8 petitions for reconsideration filed on June 10. Peter didn't take action to inform the FCC, other than the formation of the SG. It is not necessary to let the FCC know that we are studying the matter when we don't have a conclusion.

3.9.18. JTC1 SC6 Ad Hoc

3.9.18.1. Jesse Walker presents 05/807r0

3.9.18.2. Worked on documents to be submitted to the JTC1 special meeting in Beijing.

3.9.18.3. Participants have worked to prepare these documents, which will be on the ExCom agenda for approval, and then will be posted on the 802.11 website.

3.9.18.4. Will have a motion to create a study group to receive WLAN requirements from JTC1 SC6.

3.10. Special Orders Motions

3.10.1. Moved: Resolved that the position of the 802.11 working group is that the PAR for 802.1am not be approved.

3.10.1.1. Moved Jesse Walker

3.10.1.2. Second Bob O'Hara

3.10.1.3. Discussion

3.10.1.3.1. Does this motion need to be directed to the WG chair to take action in ExCom?

3.10.1.3.2. There is a specific procedure for a directed position of the chair. We are not doing that.

3.10.1.3.3. 802.1 did vote to co-locate at the wireless interim meeting in September. They did revise the PAR.

3.10.1.3.4. Did the 802.1 group confirm that they will be at our September meeting? Yes.

3.10.1.3.5. In support of the motion. How can we manage operation in all the possible spectrum in operation? It is a complex problem.

3.10.1.3.6. In favor of the motion. If all we do is vote no during the motion, it will have little impact. Could we add a description of the reasons of our no vote?

3.10.1.3.7. This is not the right place to do this work. We should extend the PAR in 802.21.

3.10.1.3.8. the 802.1 group has been informed clearly of our opinions, but has chosen to disregard that opinion. The argument can be made at ExCom. The work is very difficult, but the glaring problem is that the work went from a tutorial in March where the majority of attendees were against a PAR, to a PAR without any involvement with the wireless working groups.

3.10.1.3.9. Against the motion. The only place this work can be done is in 802.1. It wants to create a common dictionary of all wireless standards.

3.10.1.3.10. In favor. 802.1am has stated that they only plan to cover 802 wireless, not all wireless standards that we have to coexist with. There is also activity to form a wireless architecture group to cover this function. 802.1am would be redundant. 802.16 has adopted a proposal for voting down the 802.1am PAR and creating a PAR under SEC.

3.10.1.3.11. Comments were provided to the 802.1 WG. They are doing work that affects the wireless groups. Management is in the radio, not just the MAC. 802.1am says they want to define a dictionary, but they really want to define a management protocol. This is why a SG needs to be formed.

3.10.1.3.12. There really isn't widespread support for 802.1am. The straw poll showed lack of interest. 802.1am is not required for multi-vendor interoperability.

3.10.1.3.13. Opposed to motion. Is this action the equivalent of direction? No we are not directing the chair. 802.1 is only allowed to address 802, an not groups beyond that. In Australia, a straw poll in the wireless architecture group indicated interest in a common language for management and control. Feels that 802.1 is the parent of all wireless groups.

3.10.1.3.14. 802.1 is very busy, It would be hard for them to handle this. They do not spawn off subcommittees. They are really the architecture for 802.3.

3.10.1.3.15. In favor. The position of most if not all wireless Wags is that this is a bad idea. The general agreement is that further study is needed, but not the formation of a TG in 802.1.

3.10.1.3.16. There are a range of questions to be answered by all the stakeholders. Call the question

3.10.1.3.16.1. Andrew / Mike

3.10.1.3.16.2. Vote on calling the question: passes 87 : 2 : 12.

3.10.1.4. Motion ID 509

3.10.1.5. Vote on the main motion: passes 75 : 3 : 15.

3.10.2. Moved: To direct the chair of the 802.11 working group to represent the position of the working group by voting against any approval of the PAR for 802.1am.

3.10.2.1. Moved Bob O'Hara

3.10.2.2. Second Jesse Walker

3.10.2.3. Discussion

3.10.2.3.1. Opposed to this – this appears to undermine the chair and reflects poorly on the WG. If there is a technical argument, but doesn't feel there is any.

3.10.2.3.2. In favor of this motion. It doesn't undermine the chair, but sends a strong message that this is the position of the membership and not just the chair.

3.10.2.3.3. There is a procedural issue – A PAR belongs to IEEE 802. It should be a statement of consensus. In favor.

3.10.2.3.4. We should only debate this motion not the previous one. Call the question

3.10.2.3.4.1. Dave / Dennis

3.10.2.3.4.2. No objections – question called.

3.10.2.4. Vote on the main motion: passes 90 : 2 : 15

3.10.2.5. Discussion

3.10.2.5.1. To what extent is the chair allowed to improvise? Can the chair move to postpone until November the discussion of the 802.1 PAR. Stuart J. Kerry states that he is directed by the group.

3.10.3. Believing that comment responses in 11-04/0546r9, 11-04/0988r4, 11-04/1155r2, 11-04/1394r5, 11-05/1580r4, 11-05/0131r2, 11-05/0376r0 and the draft mentioned below demonstrate that the IEEE-SA rules for sponsor ballot have reached an orderly endpoint, Move: Request that approval of 802.11e draft 13.0 be placed on the next available RevCom agenda.

3.10.3.1. Moved Srini Kandala on behalf of TGe

3.10.3.2. Vote: passes 110 : 0 : 3

3.10.3.3. Stuart J. Kerry thanks Srini for his work as Technical Editor, and for stepping in as chair this week.

3.10.4. Move to request the Working Group to empower TGk to hold an ad-hoc meeting in Seattle for 9/14-16 (Paine) as required to conduct business necessary to progress the Letter Ballot process, including creating and issuing drafts for Letter Ballots and handling other business necessary to progress through the IEEE standards process.

3.10.4.1. Moved Richard Paine on behalf of TGk

3.10.4.2. Discussion

3.10.4.2.1. Does this mean that this meeting would be conducted as a plenary or interim, but without a quorum. For example making technical changes to a draft? If so, what is the mechanism to verify voting membership? Would the actions be reconfirmed at a regular meeting.

3.10.4.2.2. Stuart J. Kerry reminds the group that decisions made in ad-hoc have to be re-affirmed in a regular Interim or Plenary meeting. This was also stated in Cairns.

3.10.4.2.3. Are the changes reviewed in block form? Yes. They are approved, processed, and put on the server. They are segmented blocks.

3.10.4.3. Vote: The motion is approved with Unanimous consent.

3.10.5. Agenda Question

3.10.5.1. Stuart J. Kerry asks the body if we do the 7 motions before the break, or break now and then do them.

3.10.5.2. We will proceed and break in the middle.

3.10.6. Moved: To send 802.11REV-ma D3.0 to working group recirculation ballot.

3.10.6.1. Moved Bob O'Hara on behalf of TGm

3.10.6.2. Discussion

3.10.6.2.1. When would this occur?

3.10.6.2.2. It will happen as soon as the draft is available from the editor. No schedule yet.

3.10.6.2.3. Be sure Harry has time to distribute the drafts.

3.10.6.3. Vote: approved with Unanimous consent

3.10.7. Moved: To instruct the chair of the 802.11 working group to make 802.11REV-ma D3.0 available for sale.

3.10.7.1. Moved Bob O'Hara on behalf of TGm

3.10.7.2. Vote: approved with Unanimous consent

3.10.8. Moved: to authorize Task Group m to hold ballot resolution meetings upon closure of the recirculation ballot on 802.11REV-ma D3.0 and issue a new draft (802.11REV-ma D4.0) upon resolution of all comments.

3.10.8.1. Moved Bob O'Hara on behalf of TGm

3.10.8.2. Discussion

3.10.8.2.1. Is this meeting going to place things into a draft outside of this meeting. Are we waiving our P&P? How to we verify voting members there?

3.10.8.2.2. Stuart J. Kerry states that this is for comment resolution. It will be announced according to the P&P. This will be the same as the one held in June to resolve comments on Draft 1.0.

3.10.8.2.3. This does not presume any outcome to the recirculation ballot.

3.10.8.2.4. Have a problem with a small group modifying the draft outside of a regularly scheduled meeting.

3.10.8.2.5. We need to change the wording. The draft should be issued back to the WG.

3.10.8.2.6. If any changes are made to the draft it must be recirculated to the WG for approval.
3.10.8.2.7. The concern was who was making the changes.
3.10.8.2.8. The comment resolution meeting members are documented and known to be voters.
3.10.8.2.9.
3.10.8.3. Motion to amend: Moved: to authorize Task Group m to hold ad-hoc ballot resolution meetings upon closure of the recirculation ballot on 802.11REV-ma D3.0 and issue a new draft (802.11REV-ma D4.0) upon resolution of all comments.
3.10.8.3.1. Moved Dave Bagby
3.10.8.3.2. Any objection? Yes
3.10.8.4. Recess for 30 minutes.
3.10.8.5. The meeting comes back to order at 10:37am
3.10.8.5.1. Second to the motion to amend: Garth Hillman
3.10.8.5.2. Discussion on the motion to amend
3.10.8.5.2.1. Against the motion – Ad Hoc is a loaded term. We have done this numerous times. Why should we change.
3.10.8.5.2.2. Against the motion. This motion is according to the rules of the IEEE-SA, and the rules of IEEE would apply.
3.10.8.5.3. No objection to calling the question
3.10.8.5.4. Vote on the motion to amend: Fails 1 : 30 : 39
3.10.8.6. Motion on the floor: Moved: to authorize Task Group m to hold ballot resolution meetings upon closure of the recirculation ballot on 802.11REV-ma D3.0 and issue a new draft (802.11REV-ma D4.0) upon resolution of all comments.
3.10.8.6.1. Discussion on the main motion
3.10.8.6.1.1. Call the question Srini / Andrew
3.10.8.6.1.2. passes 54 : 2 : 6
3.10.8.6.2. Vote on the main motion: passes 62 : 1 : 3.

3.10.9. Moved: To authorize sending 802.11REV-ma D4.0 to working group recirculation ballot, if necessary, upon its completion by the editor.

3.10.9.1. Moved Bob O'Hara on behalf of TGm
3.10.9.2. Discussion
3.10.9.2.1. Uncomfortable with having a group change a draft without the WG consent. Suggest that the phrase "if necessary" is deleted.
3.10.9.2.2. The purpose of the phrase is because there is a possibility that the recirculation could be successful and there are no changes.
3.10.9.2.3. There is a question about what is technical and what is editorial.
3.10.9.2.4. Stuart J. Kerry states that the editor can make changes that do not change the function of the matter, such as spelling and punctuation.
3.10.9.2.5. Is this unwritten? No it is written in the rules.
3.10.9.2.6. Disagrees – could not find any references defining technical vs. editorial.
3.10.9.2.7. This has been discussed with editors and IEEE staff. It is the policy we will follow.
3.10.9.2.8. Since the ultimate test of the WG approval is the letter ballot, we should approve this.
3.10.9.2.9. Call the question Srini / Darwin. No objections.
3.10.9.3. Vote on the motion. Passes 63 : 5 : 7

3.10.10. Moved: To authorize Task Group m to hold ballot resolution meetings, if necessary, upon the close of the recirculation ballot on 802.11REV-ma D4.0.

3.10.10.1. Moved Bob O'Hara on behalf of TGm
3.10.10.2. Discussion
3.10.10.2.1. None

3.10.10.3. Vote: the motion is approved by Unanimous consent

3.10.11. Moved: To request conditional approval to send 802.11REV-ma to sponsor ballot upon conclusion of a working group recirculation ballot that meets all requirements in the LMSC Policies and Procedures.

3.10.11.1. Moved Bob O'Hara on behalf of TGm

3.10.11.2. Discussion

3.10.11.2.1. Bob states that the P&P includes the dates of the resolutions meetings and ballots. Recirc begins on August 8th and September 5th. Meetings could be on August 23rd and September 19th.

3.10.11.2.2. The membership needs to understand that there will be a letter ballot and decision to send to sponsor ballot, all happening between meetings. Members need to understand what they are voting on.

3.10.11.2.3. Request that a counted vote of members be taken.

3.10.11.2.4. Following up that this is a revision to the standard, and anything in the standard can be changed.

3.10.11.2.5. Agree entirely. The WG needs time to review. It has been available for many months. There will be additional recirculation ballots, which give the WG an opportunity to review and comment. Only the pages with changes are open to comment.

3.10.11.2.6. This WG has always had full review of this document in all ballots, and has been available to all members. Urges the membership to approve this motion.

3.10.11.2.7. Once 75% approval has been met it is the duty of the WG to publish the standard without delay.

3.10.11.2.8. Is it possible to have some overview of the changes. There is a concern that a new 1000 page document is difficult to review. Could some pointers to changes be provided to the membership?

3.10.11.2.9. that document has been provided with every draft. Every change is noted and clearly visible with change bars. No summary is available.

3.10.11.2.10. Can the Framemaker summary document be distributed? The WG chair doesn't know if that is possible. It is not the process of the WG or TG in the past.

3.10.11.2.11. How many technical comments were on the last ballot? There were 70 to 80 out of 135. None were ruled invalid. Would expect zero on the next ballot.

3.10.11.2.12. When we have information on disposition of comments in PDF it is difficult to work with. Request that the information is provided in a spreadsheet.

3.10.11.2.13. The PDF is searchable. The TGm chair cannot provide any other formats at this time.

3.10.11.2.14. Are the ballot and meeting dates fixed? No they are best guesses, but not part of the motion.

3.10.11.3. Call the question : Darwin / Pat

3.10.11.3.1. Vote on calling the question: passes 58 : 2 : 6

3.10.11.4. Count of voting members in the room: 104

3.10.11.5. Vote on the main motion: passes 76 : 8 : 16

3.10.12. Moved: To authorize the 802.11 working group chair to send 802.11REV-ma to sponsor ballot, upon successful completion of a working group recirculation ballot that meets all requirements for conditional approval as set forth in the LMSC Policies and Procedures.

3.10.12.1. Moved Bob O'Hara on behalf of TGm

3.10.12.2. Discussion

3.10.12.2.1. None

3.10.12.3. Vote: the motion is approved by Unanimous consent

3.10.13. Move to have bit 12 of the Capability Information field be allocated to "WAVE" as defined in 802.11p

3.10.13.1. Moved Lee Armstrong on behalf of TGp

3.10.13.2. Discussion

3.10.13.2.1. Believe Bit 12 has been assigned to TGk

3.10.13.2.2. Need to know why this is needed by TGp. Request the TG to provide background.

3.10.13.2.3. Lee Armstrong states that TGp is a particular mode for operation in a licensed band, and particular rules must be followed. This indicates that capability.

3.10.13.2.4. Suggest that the WG should be evaluated through the Letter Ballot process.

3.10.13.2.5. Stuart J. Kerry states that this is our normal process through the ANA.

3.10.13.2.6. Bob O'Hara (ANA lead) states that bit 12 is already assigned for radio management. The ANA procedure on the 802.11 web site say that a request must be made by the TG or WG by way of a motion to request. The request may ask for a specific number, but a specific number may not be granted. Once the motion is approved, the ANA comes back with the assignment.

3.10.13.2.7. In addition, the last resource will not be assigned, However the last bit in the capability information field has already been assigned.

3.10.13.2.8. We had a discussion on this – an escape mechanism was not needed. A new element would serve the same function.

3.10.13.2.9. Recess for 1 minute for side discussions.

3.10.13.2.10. Stuart J. Kerry states that this is merely a request. There is no requirement for a letter ballot first.

3.10.13.2.11. Suggests that it is too early in the lifetime of TGp. Doesn't want to spend time on this.

3.10.13.3. Move to table the motion.

3.10.13.3.1. Moved Adrian Stephens

3.10.13.3.2. Second Dave Bagby

3.10.13.3.3. Vote on tabling the motion: passes 61 : 5 : 6

3.10.14. Move To request that the 802.11 Working Group (WG) authorize submission of draft PAR and Five Criteria draft by WG chair to the Executive Committee before October 15, 2005 for EC approval and forwarding to NesCom, subject to WG reaffirmation vote on Monday of IEEE 802 November plenary.

3.10.14.1. Moved Peter Ecclesine on behalf of CBP-SG

3.10.14.2. Discussion

3.10.14.2.1. Peter states that to get on ExCom agenda action must be taken by October. We have to approve now, and can re-affirm in November.

3.10.14.2.2. Against this – We had a PAR that was to be forwarded. Due to FCC circumstances, we should delay approval. Nothing has changed to allow this. We should continue to wait until the FCC acts.

3.10.14.2.3. Peter states that the FCC has indicated what it is going to do. There are only 15 and 10 day windows for comments. By August 24th, we will be able to see everything posted to the FCC with respect to petitions. It is entirely likely in September that the draft 565r1 would come forward, plus whatever else. This enables us to take action in September.

3.10.14.2.4. Still we don't' know, and prefer to wait.

3.10.14.2.5. Against the motion – Not sure what this authorizes. What versions would be appropriate at that time. What would the SG be able to do? How can we re-affirm after SEC approval? Proposes to amend and use a WG Letter ballot in the future before the cutoff date.

3.10.14.2.6. Motion to amend to: Move To request that the 802.11 Working Group (WG) authorize a 40 day letter ballot submission of draft PAR and Five Criteria draft by WG chair to the Executive Committee before October 15, 2005 for EC approval and forwarding to NesCom.

3.10.14.2.7. Moved Adrian

3.10.14.2.8. Second Jesse

3.10.14.2.9. Discussion

3.10.14.2.9.1. The SEC wants to see motions with vote counts. Other groups can comment on PARs and changes can be made during the plenary week. A WG vote often is needed regardless. A letter ballot will not satisfy the SEC. They will still want a vote. The unamended motion gives more flexibility. Against the amendment.

3.10.14.2.9.2. The chair moves to Al Petrick

3.10.14.2.9.3. Not sure that this serves any purpose – against the amendment.

3.10.14.2.9.4. Is this process compatible with our P&P? Al Petrick says Yes.

3.10.14.2.10. Vote on the amendment: Fails 8 : 16 : 32

3.10.14.3. Motion on the floor: Move To request that the 802.11 Working Group (WG) authorize submission of draft PAR and Five Criteria draft by WG chair to the Executive Committee before October 15, 2005 for EC approval and forwarding to NesCom, subject to WG reaffirmation vote on Monday of IEEE 802 November plenary.

3.10.14.3.1. Vote on the motion: Passes 28 : 5 : 29

3.10.14.4. The chair moves to Stuart J. Kerry

3.10.15. Move To form an IEEE 802.11 Study Group to receive WLAN requirements from JTC1/SC6 for co-developing an amendment to IEEE Std 802.11, in accordance with ISO/IEC TR 8802-1:2001, with the intent to create a PAR and five criteria to form a new Task Group.

3.10.15.1. Moved Jesse Walker

3.10.15.2. Second Clint Chaplin

3.10.15.3. Discussion

3.10.15.3.1. In favor – is strengthens our hand in negotiating with ISO regarding the controversy over WAPI.

3.10.15.3.2. It is important to work with international bodies such as ISO. Hoping for a unanimous approval.

3.10.15.3.3. Do we have any commitment that JTC1/SC6 will send anything? Not yet. This is just a message.

3.10.15.3.4. Do we have any timeline? We expect that this issue will be resolved in August. If they go in the direction we hope, this SG will meet for the first time in Vancouver. Otherwise it will dissolve.

3.10.15.3.5. This SG could receive comments on other topics from ISO.

3.10.15.3.6. Text change from “Std” to “TR” – no objection.

3.10.15.4. Vote: passes 72 : 0 : 0

3.10.15.5. Volunteers for Chair of the SG are solicited by the WG chair.

3.10.16. Secretaries Guidelines

3.10.16.1. It is a guideline – it will be issued as-is.

3.10.17. Documentation Update

3.10.17.1. Harry will post documentation update.

3.11. New Business

3.11.1. 802.11 requests the formation of an EC Study Group on IEEE 802 architecture issues that addresses wireless issues

3.11.1.1. Moved Tom Seip
3.11.1.2. Second Scott
3.11.1.3. Discussion
3.11.1.3.1. This was suggested that the work be done as a SG under EC.
3.11.1.3.2. No objection from the mover. No objection from the body.
3.11.1.4. Vote: passes 78 : 0 : 0

3.12. WG Generic Motions

Month Year **Motion** **doc.: IEEE 802.11-04/xxxxrx**

Move to empower the following TG(s)/SG(s)/Ad-Hoc to hold teleconference calls beginning no sooner than August 7, 2005 through 15 days past the end of the November, 2005 Plenary Session.

Group	Start Date	Duration	Time
CBP-SG	August 24, 2005	Bi-Weekly	13:00 ET
Ad-Hoc JTC1	August 24, 2005	Weekly	19:00 – 20:00 ET
Task Group “k”	July 28, 2005	Weekly	11:30 ET
Task Group “m”	NA	NA	NA
Task Group “s”	September 14,2005	Once	11:00 ET
Task Group “T”	July 28,2005	Bi-Weekly	12:00 ET
Task Group “p”	NA	NA	NA
Task Group “r”	August 3, 2005	Bi-weekly	11:00 ET
Task Group “n”	NA	NA	NA
Task Group “u”	August 11,2005 August 24,2005	Once Once	10:00 ET
Task Group “v”	NA	NA	NA
Task Group “w”	NA	NA	NA

Mover: **2nd:**
Motion: Pass/Fail X:X:X

Submission Slide 16 Name (Company)

3.12.1.
3.12.1.1. Moved Don E
3.12.1.2. Second Clint C
3.12.1.3. Discussion
3.12.1.3.1. The meetings that start before August 7th have been approved at previous meetings.
3.12.1.3.2. Richard Paine states that this schedule takes precedence over the closing report. The TGk closing report has been updated to 05/799r1
3.12.1.4. The motion is approved with Unanimous consent.
3.12.2. Move to empower the 802.11 WG, Task Groups, Ad-hocs, and SGs, SCs to hold meetings beginning July 31, 2005 through November 30,2005 to conduct business as deemed necessary.
3.12.2.1. Moved Peter
3.12.2.2. Second Srini
3.12.2.3. Approved by Unanimous consent

3.13. Other Business

3.13.1. Discussion

3.13.1.1. There will be off-line discussions on policies and procedures for ANA.

3.14. Next meeting – Garden Grove California, September 19-23, 2005

3.14.1. 802.18 RRTAG may not be meeting with 802.11 in September

3.15. Meeting adjourned at 12:00

References:

Abbott	William
Abdelilah	Youssef
Aboba	Bernard
Aboul-Magd	Osama
Abraham	Santosh
Adachi	Tomoko
Agre	Jonathan
Aldana	Carlos
Alexander	Thomas
Alimian	Areg
Amann	Keith
Anantha	Veera
Andrade	Merwyn
Andrews	Scott
Andrus	David
Aoki	Hidenori
Aoki	Tsuguhide
Aramaki	Takashi
Ariyavisitakul	Lek
Armstrong	Lee
Arnett	Larry
Asai	Yusuke
Aso	Keigo
Astrin	Arthur
Audeh	Malik
Awater	Geert
Azenkot	Yehuda
Backes	Floyd
Bagby	David
Bahr	Michael
Baker	Dennis
Bangolae	Sangeetha
Bao	feng
Barber	Simon
Bari	Farooq
Barnwell	Richard
Basson	Gal
Baysal	Burak
Bendersky	Daniel
Benko	John
Benveniste	Mathilde
Berry	Don
Bertsch	Andreas
Bhandaru	Nehru
Bhasin	Saurabh
Bhatt	Yogesh

Bjerke	Bjorn
Black	Simon
Bourgoine	Nathan
Brasier	William
Brearley	David
Brown	Thomas
Calhoun	Pat
Cam-Winget	Nancy
Canpolat	Necati
Cash	Broady
Chang	Chung-Hsing
Chang	John
Chang	RongFeng
Chaplin	Clint
Chari	Amalavoyal
CHEN	CHIEN-HUNG
Chen	James
Chen	Jeng-Hong
Chen	Michael
Chen	Wei-Peng
chen	ye
Chen	Yi-Ming
Cheng	Alexander
chesson	Greg
Choi	Sunghyun
Choi	Yang-Seok
Choi	Young Gon
Chong	Chia-Chin
Choudhury	Abhijit
Chow	King Wai
Choy	Henry
chu	liwen
Chuang	Dong-Ming
Chun	Kue
Ciotti	Frank
Clements	Ken
Coffey	Sean
Conner	W. Steven
Cook	Charles
Cooklev	Todor
Coyl	Samuel
de Courville	Marc
de Vegt	Rolf
Demel	Sabine
deVries	Jeremy
Dick	Kevin

Dickey	Susan
Doi	Yoshiharu
Dorsey	John
Douglas	Brett
Dundar	Baris
Durand	Roger
Dure	Sebastien
Eastlake 3rd	Donald
Easton	Martyn
Ecclesine	Peter
Eckard	Richard
Edney	Jonathan
Edwards	Bruce
Egan	John
Einhaus	Michael
Elbakoury	Hesham
Elbatt	Tamer
Ellis	Michael
Emmelmann	Marc
Engwer	Darwin
Epstein	Joe
Epstein	Leonid
Ergen	Mustafa
Eroz	Mustafa
Estrada	Andrew
Faccin	Stefano
Falk	Lars
Fantaske	Steve
Fechtel	Stefan
Feinberg	Paul
Feldman	Alex
Filauro	Valerio
Fischer	Matthew
Fisher	Wayne
Foegelle	Michael
Ford	Brian
Frederiks	Guido
Frei	Randy
Freiman	Amit
FREMONT	BenoÃ®t
Fung	Ho Wang
Furukawa	Hiroshi
Ganguly	Samrat
Gao	Xia
Garg	Atul
George	Manoj

Ghazi	Vafa
Ghosh	Monisha
Godfrey	Tim
Goettemoeller	Mike
Golmie	Nada
Gong	Michelle
Gonorovsky	Ilya
Govindarajan	Prasad
Gowans	Andrew
Grandhi	Sudheer
Graulus	Rik
Gray	Gordon
Gray	Paul
Green	Larry
Gu	Daqing
Gunduzhan	Emre
Gupta	Vivek
gurevich	david
Gyugyi	Paul
Haensgen	Gregg
Haisch	Herman
Hall	Robert
Hamady	Neil
Hansen	Christopher
Hares	Susan
Harford	James
Harkins	Daniel
Hart	Brian
Hartman	Chris
Hassan	Amer
Hauser	James
Hayakawa	Yutaka
Hayase	Shigenori
Hayes	Kevin
Hedberg	David
Henderson	Gregory
Heubaum	Karl
Hiertz	Guido
Hilberman	Dan
Hillman	Garth
Hinsz	Christopher
Hira	Mukesh
Hirano	Jun
Hoghooghi	Michael
Hollister	Allen
Holt	Keith

Honary	Hooman
Horne	William
Hsu	Terng-Yin
Hsu	Yungping
Hu	Wendong
Hunter	David
Hwang	Hyo sun
Ikram	Muhammad
Inoue	Yasuhiko
Ishida	Kazuhito
Ishidoshiro	Takashi
Iyer	Lakshmi
Jacobsen	Eric
Jalfon	Marc
Jang	KyungHun
Jang	Yeong Min
Jauh	Yuh-Ren
Jeon	Ho-In
Jeon	Taehyun
Jeong	Moo Ryong
Jetcheva	Jorjeta
Ji	Lusheng
Jogi	Sunil
Johnson	Todd
Jokela	Jari
Jones	Ben
Jones	VK
Joshi	Avinash
Jou	Tyan-Shu
Juenemann	Dale
Jung	Young-Ho
Kado	Youiti
Kain	Carl
Kakani	Naveen
Kandala	Srinivas
Kang	Hun
Kangude	Shantanu
Kasher	Assaf
Kato	Masato
Kelly	Neil
Kent	Jeremy
Kerry	Stuart
Ketchum	John
Khieu	Andrew
Kikuma	Tomohiro
Kim	Jaeyoel

Kim	Joonsuk
Kim	Kyeongsoo
Kim	Min-Soo
Kim	Tae-eun
Kim	Youngsoo
Kim	Yungsoo
Kimhi	Ziv
Kish	William
Kishibe	Sadaharu
KISHIMOTO	SHIGEO
Kleindl	Guenter
Kneckt	Jarkko
Kobayashi	Mark
Kojukhov	Andrei
Kokubo	Masaru
Kolze	Thomas
Kong	Jiyoung
Koo	Ki-Jong
Koomullil	George
Kopikar	Rahul
Kose	Cenk
Kraemer	Bruce
Kruys	Jan
Kuehnel	Thomas
Kukshya	Vikas
Kumar	Rajneesh
Kunihiro	Takushi
Kuo	Ted
Kuratani	Yasutaka
Kurihara	Tom
Kuwahara	Denis
Kwak	Joseph
Landt	Jeremy
Lee	Dongjun
Lee	Insun
Lee	Jihoon
Lee	Myung
Lee	Sok-Kyu
LEE	SUNG-WON
Lee	Tae-Jin
Lefkowitz	Martin
Lemberger	Uriel
Levy	Joseph
LI	JIA-RU
Li	Pen
Li	Wenzhen

Liang	Jie
Lin	CHIH PAO
Lin	Huashih
Liu	Changwen
Liu	Der-Zheng
Liu	Hang
Liu	I-Ru
Liu	Jun
Liu	Xiaoyu
Liu	Yong
Liva	Val
Lo	Felix
Loc	Peter
Lojko	Peter
Lou	Hui-Ling
MacKenzie	Philip
Makishima	Doug
Malinen	Jouni
Mangold	Stefan
Mani	Mahalingam
Marshall	William
Martin	Art
Matache	Adina
Mathur	Saurabh
MATSUMOTO	TOMOYUKI
Matsuo	Ryoko
Matta	Sudheer
Maufer	Thomas
Mayer	Bob
McCann	Stephen
Mcclellan	Kelly
Mcintosh	Bill
McNamara	Darren
Mcnew	Justin
Medvedev	Irina
Mehta	Pratik
Merrill	Mark
Meyer	Klaus
Meylan	Arnaud
Miki	Morgan
Miller	Robert
Min	Seungwook
Minkin	Ilya
Miura	Akira
Mlinarsky	Fanny
Mohindra	Rishi

Montemurro	Michael
Montenegro	Gabriel
Moore	Rondal
Moorti	Rajendra
Moreton	Mike
MORIOKA	Hitoshi
Morioka	Yuichi
Mujtaba	Syed
Murali	Partha
Myles	Andrew
Nagai	Yukimasa
Nakamura	Tetsuya
Nakao	Seigo
Nakase	Hiroyuki
Nallapureddy	Bhaskar
Nam	Seung Hoon
Nanda	Sanjiv
Narasimhan	Partha
Narkadamilli	Purushothamarao
Nedic	Slobodan
Ngo	Chiu
Noens	Richard
Nohara	Mitsuo
Odman	Knut
Ogawa	Masakatsu
Oguma	Hiroshi
O'Hara	Bob
Ojard	Eric
Olson	Chandra
Olson	Timothy
Onan	Jon
Oyama	Satoshi
Ozluturk	Fatih
Paine	Richard
Palm	Stephen
Panish	Paul
Papathanassiou	Apostolos
Parameswaran	Subra
Pare	Thomas
Pariseau	Luc
Park	Jong-ae
Parsa	Kourosh
Pauluzzi	David
Perahia	Eldad
Perez Costa	Xavier
Perillo	Mark

Petranovich	Jim
Petrick	Al
Picken	Willie
Pirzada	Fahd
Pitarresi	Joe
Pollock	Tony
Ponnuswamy	Subbu
Poojary	Neeraj
pope	stephen
Portaro	James
Proctor	James
Ptasinski	Henry
Puig	Carlos
Qi	Emily
Qian	Lu
quail	david
Raab	Jim
Raissinia	Ali
Rajappan	Gowri
Ramesh	Sridhar
Rangwala	Noman
Rayment	Stephen
Reddy	Joseph
Reible	Stanley
Repice	Joseph
Reuss	Edward
Riegel	Maximilian
Rios	Carlos
Roebuck	Randy
Roh	June Chul
Rosca	Justinian
Rosdahl	Jon
Roy	Richard
Rude	Michael
Sadeghi	Bahareh
Saleem	Syed
Salhotra	Atul
Sanwalka	Anil
Sarrigeorgidis	Konstantinos
Sashihara	Toshiyuki
Sastry	Ambatipudi
SATAPATI	SURESH
Sato	Kazuma
Saxena	Monica
Scarpa	Vincenzo
Schiffer	Jeffrey

Schulter	Peter
Schultz	Donald
Seals	Michael
Sekiya	Kayato
Sensendorf	Joe
Shao	Huai-Rong
Sharma	Neeraj
Sharon	Ariel
Shavit	Yael
Shen	BZ (Ba-Zhong)
Shen	Yangmin
Sherlock	Ian
Sheu	Ming
Shimada	Shusaku
SHIRALI	KEDAR
Shono	Takashi
Shyy	Dong-Jye
Simons	John
Simpson	Floyd
Singh	Balraj
Sinha	Vishal
Skafidas	Efstratios (Stan)
Smith	Matt
Smith	Will
So	Tricci
sood	kapil
Soranno	Robert
Stafford	Robert
Stanley	Dorothy
Steck	William
Stephens	Adrian
Stevens	Fabrice
Stibor	Lothar
Stolpman	Victor
Strutt	Guenael
Sugawara	Tsutomu
Suh	Junghoon
Sun	George
Sun	Sumei
Surineni	Shravan
Suzuki	Hideyuki
Takagi	Eiji
Takagi	Masahiro
Takahashi	Seiichiro
Takeda	Daisuke
Tambe	Sonal

Tan	Pek Yew
Tan	Teik-Kheong
Tanaka	Yasuhiro
Taori	Rakesh
Tavares	Clifford
Terao	Masayuki
Thiagarajan	Ganesan
Thornycroft	Peter
Thrasher	Jerry
Tokubo	Eric
Tolpin	Alexander
Towell	Tim
Trachewsky	Jason
Trainin	Solomon
Trecker	Christopher
Tsao	Jean
Tsien	Chih
Tsoulogiannis	Tom
Tung	David
Turner	Sandra
Tyson	Shannon
Tzamaloukas	Mike
Van Erven	Niels
van Nee	Richard
van Waes	Nico
Varas	Fabian
Victor	Dalton
Vijayakumar	Rajiv
Vlantis	George
Vleugels	Katelijn
Vogtli	Nanci
Walker	Jesse
Wallace	Brad
Wandile	Vivek
Wang	Huaiyuan
Wang	Xiangyu
Ward	Dennis
Ward	Lisa
Ware	Christopher
Warner	William
Watanabe	Fujio
Webster	Mark
Weissberger	Alan
Wells	Bryan
Wen	Chao-Kai
Wendt	James

Weytjens	Filip
Whitesell	Stephen
Williams	Michael
WILSON	james
Winters	Jack
Wong	Marcus
Wong	Timothy
woodyatt	james
Worstell	Harry
Wright	Charles
Wu	Gang
Wu	Songping
Xhafa	Ariton
Xia	Bo
YAGI	AKIYOSHI
Yamada	Katsuhiko
YAMAMOTO	Takeshi
Yamanaka	Akira
Yamaura	Tomoya
Yang	Liuyang
Yao	Zhonghui
Yaqub	Raziq
Ye	Huanchun
Yee	James
Yeh	Chi-Hsiang
Young	Christopher
Yu	Mao
Yung	Hon
Yurtkuran	Erol
Zeira	Eldad
Zhang	Jinyun
Zhang	Tiebing
Zhao	Fuyong
Zhao	Rui
zhou	Zheng
Zhu	Chunhui
Zhu	Jeffrey
Zorlu-Ozer	Sebnem
Zorn	Glen
Zuniga	Juan Carlos
Zweig	Johnny

IEEE P802.11
Wireless LANs

Minutes of 802.11 Task Group E
MAC Enhancements - QoS
San Francisco, CA
July, 2005

Date: 2005-07-19

Author(s):

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Abstract

This document records minutes of the 802.11e Task Group meeting of July, 2005 at San Francisco, California.

1. Wednesday Morning Session, July 20, 2005

1.2. Opening

1.2.1. Call to order

1.2.1.1. Srini Kandala (Srini): I am Srini Kandala, Editor of TGe , and I am standing in as chair for John Fakatselis, the Chair of TGe. I call the meeting to order.

1.2.1.2. Meeting convened at 0801 hours.

1.3. Process

1.3.1. Review of Process/New Members

1.3.1.1. Srini: Are there any new members? No. In light of the fact that attendees should be familiar with the process, I want to specially call your attention to the patent disclosure requirements of 802. Please review them.

1.3.2. Review of Agenda

1.3.2.1. Srini: On the screen you see the proposed agenda. This promises to be a short meeting as our work will be to prepare 802.11e for submission to ExCom and RevCom.

1.3.3. Approval of Agenda

1.3.3.1. Srini: I show the agenda on the screen. Is there any objection to accepting the agenda as shown? None. The agenda is adopted unanimously.

1.3.4. Review of Minutes

1.3.4.1. Srini: The minutes are shown before you in document 05/0477r0. Would anyone like some time to review the minutes? We will postpone approval for a time to allow review.

1.3.5. Presentation of Document 05/659r0

1.3.5.1. Srini: I shall present document 05/659r0 TGe Draft Sponsor Ballot Information. This is part of the package to be delivered to ExCom. Any questions? Then I would like proceed with presentation of this document.

1.3.5.2. The document contains information on TGe draft sponsor ballot., history, etc. necessary for submission to ExCom.

1.3.5.3. 161 members in pool, ballot opened in March. 125 returns 99% approval by April 16, 2005.

1.3.5.4. I see that I have an error in the document, and would like to correct it so that we can continue in accordance with the 4 hour rule. May I call a recess to correct it?

1.3.5.5. AlPetrick: Srini, please make sure you update the revision number.

1.4. Closing

1.4.1. Recess

1.4.1.1. I would like to recess for 15 minutes. Are there any objections? Seeing none, we are recessed.

1.4.1.2. Recess at 0814.

1.1. Opening

1.1.1. Call to order

1.1.1.1. Srini: I call the meeting to order.

1.1.1.2. Meeting convened at 0832.

1.2. Process

1.2.1. Resume Document Discussion

1.2.1.1. Srini: I have added on Slide 8, a second bullet item, and on Slide 5, I have added to the third bullet, a second dashed item. The revised document will be loaded to server as revision 1. I would then like to offer the opportunity for the membership time to review the document.

1.2.1.2. I would like to take a moment to upload the file to the server. The document, shown as r1, is uploaded to the server. (Shows server page on screen)

1.2.2. Approval of Minutes from Last Session

1.2.2.1. Srini: 05/0477. May I have a motion to approve the minutes?

1.2.2.2. Al Petrick: I so move.

1.2.2.3. Second: Ed Reuss

1.2.2.4. Srini: Is there any objection to passing this motion? None. The minutes are approved unanimously.

1.2.3. Working Group Announcement

1.2.3.1. Srini: I have been asked to announce information from the WG regarding patents that may affect approval of the TGe draft. I would like to clarify this issue and obtain the counsel of the WG.

1.3. Closing

1.3.1. Recess

1.3.1.1. I would like to recess until 0930. Are there any objections? Seeing none, we are recessed.

1.3.1.2. Recess at 0851

1.4. Opening

1.4.1. Call to order

1.4.1.1. Srini: I call the meeting to order.

1.4.1.2. Meeting convened at 0930.

1.5. Process

1.5.1. Patent Policy Review

1.5.1.1. Srini: I would like to review the 802 patent policy. (shows patent policy slides on screen). Review of patent statement, process, and responsibilities of members.

1.5.1.2. There was an issue where a patent letter has not been received from one party, and they have been contacted. This should not affect our work.

1.5.1.3. Al Petrick: Stuart has asked me to relate that he has done everything in his power to ensure that the member has been notified of the patent policy, and has met his responsibilities.

1.5.1.4. Srini: I have prepared a procedural motion.

1.5.1.5. Motion:

1.5.1.6. • *Believing that comment responses in 11-04/0546r9, 11-04/0988r4, 11-04/1155r2, 11-04/1394r5, 11-05/1580r4, 11-05/0131r2, 11-05/0376r0 and the draft mentioned below demonstrate that the IEEE-SA rules for sponsor ballot have reached an orderly endpoint,*

1.5.1.7. • **Request that approval of 802.11e draft 13.0 be placed on the next available RevCom agenda.**

1.5.1.8. May I have a mover?

1.5.1.9. Movers:

1.5.1.10. TGe: Andrei Kojukhov/Bob Miller Result: 9-0-0 (14 members present)

1.5.1.11. Srini: I have prepared a second procedural motion.

1.5.1.12. Approve 05/0659r2 along with the TGe draft and the documents 11-04/0546r9, 11-04/0988r4, 11-04/1155r2, 11-04/1394r5, 11-05/1580r4, 11-05/0131r2, 11-05/0376r0 as the package that is to be forwarded to IEEE 802.11 WG, IEEE 802 EXCOM, and REVCOM.

1.5.1.13. May I have a mover?

1.5.1.14. Moved: Bob Miller/Andrei Kojukhov Result: 8-0-0

1.5.1.15. Srini: I shall place these motions into the document as revision 2, and upload to the server.

1.5.1.16. Srini: This concludes the business of TGe. Thank you all.

1.5.1.17. [The group offers a round of applause congratulating Srini for his continuing excellence in carrying TGe forward]

1.5.1.18. Srini: May I have a motion to ajourn?

1.5.1.19. Moved Bob/Andrei

1.5.1.20. Is there any objection to adjourn TGe? None. The motion passes unanimously. We are adjourned.

1.5.1.21. Adjourn at 0943

IEEE P802.11
Wireless LANs

Minutes of TGk San Francisco Meeting

Date: 2005-08-03

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Abstract

This document contains TG 11k minutes from Plenary meeting in SF

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07/19/05 PM1 Session:

Meeting called to order at 16:00

1. Chair provided the standard IEEE policies and procedures.
    a. Patent Policy
    b. Inappropriate Topics
    c. Documentation and Presentation
        i. Simon Black – vote on the comment resolutions on ANA 05/0656 05/0655
        ii. Simon Black – vote on the comment resolutions on PICs 05/0678 06/0679
        iii. Joe Kwak – RPI
        iv. Joe Kwak – RCPI
        v. Vote on ad-hoc minutes
        vi. Vote on ad-hoc minutes
        vii. Vote on teleconference minutes (Australia – San Francisco)
        viii. Floyd Simpson – Misc. Comments
        ix. Vote on Australia minutes
        x. Vote on differences document
2. Reviewed Agenda
3. Approved Agenda
4. Technical Presentation – Removal of Neighbor Report from Association – Black – 11-05-0655r0 (normative text) 11-05-0656r0 (spreadsheet)
    a. Discussion on which document resolves comments (the spreadsheets or the normative text documents).
        i. We should keep the comments which have been accepted but not voted on separate
        ii. We are always voting on Normative Text. The spreadsheet is a formality
    b. Resolves Comments - 80, 83, 199, 205, 242, 337, 348, 349, 364, 366, 370, 413, 461, 474, 475, 490, 508, 524, 561, 583, 602, 626, 637, 640, 670, 671, 687, 697, 741, 776, 798, 799, 878, 1043, 1104, 1110, 1144, 1249, 1271, 1324, 1325, 1327, 1328, 1346, 1357
    c. Motion

       Move to instruct the editor to make the normative text changes 11-05-0655r0 in creating the next version of the 11k draft and close the comments therein.

       Moved: Black
       Second: Lefkowitz

       For: 19 **Against: 0** **Abstain: 2**

       Motion passes @ 100%

    * PG – only updated the ANA comments in 656r0

5. Technical Presentation – Revised 11k PICS – Black – 11-05-0679r0 (normative text) 11-05-0678r0 (spreadsheet)
    a. Comment – MIBs are optional and if there is must be accessible via SNMP.
    b. Comment – the MIB does not have to be accessed via SNMP. MS implemented the data structures w/o exposing it to SNMP interface.
    c. Comment – 11d (not sure if this is correct) is creating a get and set mechanism.

6. Technical Presentation – RPI Comment Resolution – Kwak – 11-05-0685r0 (normative text) 11-05-0686r0 (spreadsheet)
    a. Resolves Comments - 28, 86, 760, 1120, 1296, 1332, 1489, 1490, 1491, 1492, 1503, 1504, 1505, and 1535

b. Motion

Move to instruct the editor to make the normative text changes 11-05-0685r0 in creating the next version of the 11k draft and close the comments therein.

Moved: Black
Second: Lefkowitz

Discussion on Comments

Question – You still expect the radio to still function while this threshold is exceeded? We have define this in section 12 RCPI during receive and RPI when not receiving.

For: 9 **Against: 1** **Abstain: 6**

Motion passes

PG – Update spreadsheet r46 with RPI Comments

7. Technical Presentation – RCPI Comments Resolution – Kwak – 11-05-0440r0 (normative text) 11-05-0441r0 (spreadsheet)
   a. Reviewing spreadsheet
   b. Resolves Comments - 3, 12, 42, 65, 66, 67, 68, 69, 70, 94, 99, 100, 111, 112, 152, 165, 169, 170, 204, 266, 267, 268, 269, 273, 274, 279, 286, 294, 333, 340, 341, 368, 373, 463, 464, 477, 478, 480, 485, 487, 522, 587, 591, 610, 611, 612, 614, 649, 659, 674, 695, 739, 826, 827, 829, 862, 863, 865, 870, 871, 892, 893, 901, 919, 920, 972, 973, 974, 975, 976, 977, 982, 1105, 1106, 1117, 1130, 1158, 1209, 1210, 1256, 1270, 1313, 1326, 1331, 1362, 1363, 1412, 1415, 1440, 1444, 1454, 1472, 1488, 1509, 1510, 1519, 1523, 1524, 1525, 1540, 1541, 1542, 1543, 1544, 1545, 1587, 1598, 1600

   Comments on take out RSSI

   c. Comment – RCPI is not any better than RSSI. Answer – RCPI is quantized.
   d. Comment – RSSI of an 11b station and 11g station are not the same.
   e. Comment – I would prefer a solid measurement like RCPI in dBm. Answer – we are not reporting RSSI; it is only used as a relatively condition for reporting a beacon in RCPI.
   f. Comment – Noise level is implementation specific.
   g. Comment – For people who use RF Path loss for location this will skew your results.
   h. Comment – We should be able to use RCPI in all instances with today's chip sets.

8. Meeting in recess until PM2 19:30 tonight

07/19/05 PM2 Session:

Meeting called to order at 19:30

1. Continue Technical Presentation - RCPI Comments Resolution – Kwak – 11-05-0440r0 (normative text) 11-05-0441r0 (spreadsheet)
    a. Reviewing the normative text
    b. Comment – the is a error in reporting condition table
    c. Comment – the declined comments are included in the document
    d. Question – Is table k3 is labeled correctly? Answer – yes it is.
    e. Question – why did you go back to "10" beacons? Answer – because of comments received.
    f. Comment – The reports will only work where there is "to" and "from" address.
    g. Joe will fix the four errors and resubmit.

2. Approve the Brisbane Ad-hoc minutes
   Motion
   Move to accept the Brisbane Ad Hoc minutes found in 05/658r0.

   Moved: Srini
   Second: Black

   For: 10 Against: 0 Abstain: 2

   Motion passes

3. Approve the SF Ad-hoc minutes
   Motion
   Move to accept the SF Ad Hoc minutes found in 05/697r0.

   Moved: Gray
   Second: Srini

   For: 8 Against: 0 Abstain: 3

   Motion passes

4. Approve the teleconference minutes
   Motion
   Move to accept the teleconference minutes June and July of the teleconference between Carins and San Francisco 05/637r0. Change 3rd line on first page from Mar-May" to "Jun-Jul"

   Moved: Srini
   Second: Jan

   For: 6 Against: 0 Abstain: 5

Motion passes

5. Approve the Cairns minutes
   Motion
   Move to accept the Carins Minutes 11-0-0508r0

   Moved: Srini

Second: Kwak

For: 6 Against: 0 Abstain: 4

Motion passes

6. Discussion on

Motion

Move to accept the teleconference minutes June and July of the teleconference between Carins and San Francisco 05/637r0. Change 3rd line on first page from Mar-May" to "Jun-Jul"

Moved: Srini
Second: Jan

For: 6 Against: 0 Abstain: 5

Motion passes

7. Comment Resolution for misc.

Comment #805 – Clause 7.3.2.21.X and 7.3.2.22.X - Chaplin
Problem - What are these measurements to be used for?
Remedy - Some sort of possible use of the measurements would be nice.
Resolution – deferred – assigned to Richard Paine

Comment #813 – Clause 7.3.2.21.X and 7.3.2.22.X – Chaplin
Problem – Most of the draft seems to imply that the normal way to use the measurements is by request/response pairs. However, in a few places the point is made that measurement reports may happen without a request. How is such a response set up and administered, or when should such an autonomous measurement be expected?
Remedy - I cannot suggest text; this comment points out a deficiency in the draft such that it is unclear what the intent is.
Resolution – deferred – assigned to Simon Black

Comment #815 – Clause 11.8.1 - Chaplin
Problem – IEEE 802.11F is only Trial Use, and it is not obvious that it will remain.
Remedy - Remove reference to IEEE 802.11F
Comment – we have addressed this in the prior LB.
Resolution – accept – P56 L18 – Remove "such as IEEE 802.11F"
Same #981, #353, #1404

Comment #816 – Clause General - Raissinia
Problem - What is the need for autonomous reporting in 802.11k? I understand it was useful in the context of 802.11h to inform other STAs regarding the presence of a RADAR but for 11k, measurement reports should be generated only in response to specific requests so what is the point in generating and sending the reports if the receiver has no use for it ? As an exception, it may be OK to allow autonomous neighbor report to be broadcast by an AP to all STAs in the BSS since this is useful information which could be used by the STAs for scanning and roaming optimizations.
Remedy - Remove autonomous reporting from 11k completely or just allow its use for neighbor reports
Resolution – deferred – assigned to Simon Black

Comment #855 – Annex D – Barber

Problem - Making measurements by SNMP requires polling for results
Remedy - Send a TRAP on results being available - especially useful for conditional measurements
Resolution – deferred – assigned to Tim Olson

Comment #856 – Annex D - Barber
Problem - dot11PeerStatsTableBSSaging has no default value
Remedy - suggest 300
Resolution – accept

Comment #857 – Annex D – Barber
Problem - dot11PeerStatsTableIBSSaging has no default value
Remedy - suggest 300
Resolution – accept

Comment #859 - Annex D – Barber
Problem - Measurements should be a L2 service
Remedy - Make measurements a data frame with a new ethertype.
Comment – this relates to legacy clients where you can do it in upper layers plus it can cross the DS.
Question – Why is the DS important? Answer – for roaming decisions.
Resolution – decline – Through comment resolution this approach was discussed during the debate on security in 11k and it was decided not to go down this route.

Comment #869 – Clause 7.3.2.22.7 – Winters
Problem - It would be useful if the PHY type can be reported in the frame report.
Remedy - Add a field called "PHY type" in figure k15 and assign 1 octet for length. P25, L3, insert the PHY type definition as the following: PHY Type indicates the physical medium type of the frames being reported. Valid entries are coded according to the value of dot11PHYType.
Resolution – decline – a frame report entry is summary which may represent multiple PHY types, e.g. 11g stations transmitting at multiple rates.

Comment #890 – Clause 7.3.1.11 – Ptasinski
Problem - Why is Radio measurement defined as 5, with 1-4 reserved?
Remedy –
Resolution – deferred – assigned to Simon Black

Comment #913 – Clause 7.2.3.8 – O'Hara
Problem - The DS Parameter set should be used for ALL PHYs where the transmission channel is ambiguous
Remedy - replace the condition for use with one that is broader and allows the use with any PHY where the receiver may be uncertain as to the channel on which the transmission was made.
Resolution – decline – The DSS parameter set only applies to DS PHYs.

Comment #928 – Clause 7.3.2.22.7 – O'Hara
Problem - the frame report is of dubious value, as it is unreliable information and costly to acquire, at least in terms of time spent doing the measurement and memory consumed for the data structures.
Remedy - remove the frame report
Resolution – deferred – vote on tomorrow.

Comment #929 - Clause 7.3.2.22.7 – O'Hara
Problem - the frame report is of dubious value, as it is unreliable information and costly to acquire, at least in terms of time spent doing the measurement and memory consumed for the data structures.
Remedy - remove the frame report
Resolution – deferred – vote on tomorrow.

Comment #956 – Clause 11.7.8.7 – O'Hara
Problem - the information in the STA statistics report is available through existing means. Duplication is not necessary.
Remedy - delete this section.
Resolution – decline – whilst it would possible to retrieve this information via SNMP it was the opinion of the group that not all STA implementations be burden with an SNMP agent to retrieve a limited set of MAC statistics.

Comment #992 – Clause 5.2.5 - Klein
Problem - P2:L13 - Measurements do not enable stations to automatically adjust to the radio environment. Radio measurements enable STAs to measure the radio environment.
Remedy - Change from "to automatically adjust" to "measure"
Resolution – decline – with the receipt radio measurements, a STA can make its own decisions on what to do.

Comment #1002 – Clause 7.3.2.22.7 – Klein
Problem – P23:L10 - What happens in the case that rounding causes the result to be > 255?
Remedy – Describe behavior when rounding occurs either here or in clause 11.
Resolution – same as #928

8. Meeting in recess until AM 1 tomorrow at 08:00.

07/20/05 AM1 Session:

Meeting called to order at 08:00

1. Reviewed Agenda
2. Agenda approved
3. Technical Presentation – Triggered Measurements – Black – 11-05-0512r0
    a. Comment – keeping track of the state of each MSDU is very difficult.
    b. Question – How do I know when to pull out a failure?
    c. Comment – there are misused terms in this document.
    d. Comment – we need to morph autonomous measurements into background measurements so as to reduce confusion in terminology. Answer – Periodic measurements have been Beacon measurements requiring the AP to go off channel which is very intrusive.
    e. Comment – there is not a great deal of change in this document. Answer – 11.11.8 is the big change in r1.
    f. Comment – this is a very specific use of a general facility. Answer – this is not that general, if we add triggers to each of the different measurements.
    g. Comment – this is better than renaming what TGh did.
    h. Question – Are the measurement durations only applied to triggers? Answer – Yes.
    i. Question – How will this metric be affected or used by rate changes?
    j. Comment – There is a great deal of complexity here – defining a timeout so one report does not mask another.
4. Up Down votes
    a. Frame Request/Report Vote

    Motion

    Move to remove the Frame request/report measurement from the 11k specification

    Moved:
    Second:

    No mover so motion fails and the Frame request/report stays in the draft

    b. Hidden Station Vote

    Motion

    Move to remove the Hidden Station request/report measurement from the 11k specification.

    Moved: Black
    Second: Jokela

    Discussion on motion

    - Against – there are many comments on this issue and the utility has limited value
    - For – this is an attempt to quantify and measure a hidden station in your area. This comes from the cell world and is well understood. It very useful for Mesh services and they have already incorporated the Hidden Station request/report into their draft.
    - Comment – Mesh does not have draft.
    - For – It is important in Enterprise as well.
    - Question – can this be deduced from other statistics that we already have
    - Against – This is useful, but the text is incomplete. We should take it out.
    - Comment – The cell reference is slightly inaccurate.
    - Against – This will produce a great deal of false positives. Hidden stations go in and out of this state.

    For: 16 **Against: 1** **Abstain: 8**

Recount requested and granted

For: 16 Against: 2 Abstain: 9

Motion Passes

c. Noise Histogram Vote

Motion

Move to remove the Noise Histogram request/report measurement from the 11k specification.

Moved: Engwer
Second: Chris

Discussion on motion

Against – we must have one noise measurement. We have taken straw polls on this and we all agreed to its value.

For: 3 Against: 18 Abstain: 6

Motion fails

d. Medium Sense Time Histogram Vote

Motion

Move to remove the Medium Sense Time Histogram request/report measurement from the 11k specification.

Moved: Olson
Second: Qi

Discussion on motion

- Question – Can someone summarize the last round of changes? Answer – most of the comments came from people who did not understand histograms and bad terminology.
- Against – used to determine statistics about interference; helps determine the types of interference that you are experiencing in your environment.
- Question – has there been functionality change? Answer – no
- Against – this is our most complex measurement

For: 21 Against:1 Abstain: 5

Motion passes

e. Location (LCI) Vote

Motion

Move to remove the LCI request/report measurement from the 11k specification.

Moved: Lefkowitz
Second:

No second so motion fails and LCI request/report

5. Technical Presentation – Unresolved Noise Comments – Olson – 11-05-0744r0 (Spreadsheet)
   a. Comments #37
      Resolution - Decline

Discussion on Comment
- Would an AP vendor implement this? Why would I trust a client?
- It is covered in general sense. There is no need to explicitly state that.
- Mesh could use this.

b. Comments #924, 925, 953
Resolution –Declined

Discussion on Comment
- Measurement is expensive
- If we are defining a standard that does not require implementation and has to be tested by an outside body why are we implementing.
- If we don't implement, how do we measure noise.
- Measurements have to be non-disruptive, so there must be a "refuse" mechanism.

c. Comments #1009
Resolution –Declined

Discussion on Comment
- Older equipment should not be measurement capable. There are older chipsets out there that will not support this.

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d. Comments #1054
Resolution –Declined

Discussion on Comment
- The Noise Histogram provides improvement on the Noise variance.

e. Comments #1330, 1366
Resolution –Declined

f. Comments #1402
Resolution – accept – addressed in 05/458r1

g. Motion

Move to instruct the editor to include 11-05-0744r0 Noise comment resolutions in the next version of the 11k draft and close the comments there in.

Moved: Olson
Second: Durand

For: 15 **Against: 1** **Abstain: 5**

Motion passes

6. Meeting in recess until 13:30 today

07/20/05 13:30 Session:

Meeting called to order at 13:01

1. Technical Presentation – Multiple ESS Comment Resolution – Leftkowitz – 11-05-0664r0
    a. Resolves Comments – 16, 31, 96, 97, 126, 155, 156, 161, 249, 414, 576, 693, 824, 968
    b. Question – what does the term "trusted" mean? Answer – it is a synonym for "secure".
    c. Comment – you can request any SSID you want, but only a single SSID.
    d. Comment – This does not address the issue of a preferred ESS list. I want all of the neighbors of the ESS list. How would you use the information that comes back? The station has some knowledge of these ESSs or otherwise why would they be in my preferred network list.
    e. Comment – Why isn't an SSID included? Answer – it is too big and variable. You can put in index to the SSID.
    f. Comment – You have deleted the MIB table. The table must be put back because it contains configuration and learned information.
    g. Comment – add MIB sentence back with something like "… the table reflects …"
    h. Comment - Much of this text has been struck in another paper.
    i. Comment – There should be descriptive text on how to fill out the SSID element.
    j. Marty will make the necessary changes and submit a motion tomorrow.
2. Technical Presentation – Adding BSSID Info Field – Leftkowitz – 11-05-0476r0
    a. Resolves comments –
    b. Comment – The "Key Scope" bit may not be around. This eliminates 99% of the pre-auth traffic.
    c. Question – Didn't this arise over the definition of "Key Scope"? The term "authenticator" does not apply a port on the switch. "Authenticator" is not defined in 802.11. It is defined in RFC 1348.
    d. Question – If all APs are the same do I need this? Answer – because you roam across WLAN switches you will need this and even in a small single WLAN switch implementation.
    e. Question – How does this address Comment #983? Answer – this comment applies to the PTK and not the PMK.

        The key scope identifier bit implies that there can be a single authenticator for a group of BSS's. However, clause 8.5 of 802.11i states that the PMK is bound to each BSSID/STA pair. The key scope identifier facilitates a method that allows the PMK to be shared across multiple BSSID's, which contradicts 802.11i key scope definitions.

    f. Comment – we have to be clear on what we are voting on "not superseding".
    g. Editor – the safest thing to do is review the changes with the Editor and bring it back for submission.
    h. Motion

        Motion

        Instruct the Editor to make the Normative Text change 05/663r0 in creating the next version of the TGk draft, and close the comments listed therein.

        Moved: Lefkowitz
        Second: Merwyn

        For: 16 **Against: 3** **Abstain: 8**

        Motion passes
        Editor Note: Change table k24 bit 2 from "RSN" to "Security"

3. Technical Presentation – WRSS in 802.11p - 11-05-754r1
    a. Comment – the accuracy is defined, but not the confidence.
    b. Comment – "Short Term" accuracy should be "relative accuracy". Relative accuracy is an oxymoron.
    c. Comment – There is practicality to getting a draft approved. Statistics are good but most often specs have confidence.
    d. Comment – you have left out some variables.

4. Meeting in recess until 16:00

07/20/05 16:00 Session:

Meeting called to order at 16:00

1. Technical Presentation – Neighbor Comment Resolution – Wang – 11-05-0580r2 (PPT)
    a. Resolves Neighbor AP Comments - 472, 596, 887, 989, 1348
    b. Comment – These comments are all included in the 11-05-743r1.
    c. Comment – "Validate AP" is an inaccurate term
    d. Comment – "Current" is an inaccurate term
    e. Comment – Valid AP should be any AP that has overlapping RF.
    f. Comment – We should separate the definition out of this section.
    g. Comment – If you populate the neighbor list with too many APs (across town), then you don't save time in scanning.

    Motion to resolve comments - 472, 596, 887, 989, 1348 – counter - change the definition to "Any validated AP that is a potential transition candidate".

    Motion passes unanimously

    Note to chair and secretary makes the change in the master spreadsheet

2. Technical Presentation – TSF Info – 11-05-0580r2 (PPT)
    a. Resolves comment #1508

    Decline – the current TSF info works well in predicting neighbor's AP TBTT.

    Note to chair and seceratry – update master spreadsheet

3. Technical Presentation – Dialog Token – 11-05-0580r2 (PPT)
    a. Resolves comment #430 – Deferred – assigned to Simon Barber

4. Technical Presentation – Misc – Floyd - 11-05-0488r2 (PPT)
    a. Resolves comment #25 – Decline – Commenter is encouraged to propose the real time measurements being alluded to if they are deemed within the scope of the 802.11k PAR.
    b. Comment – Simon Barber made a proposal on triggered measurements.

    Motion passes unanimously to decline comment #25

    c. Resolves comment #26, #27 – Counter – comment see 11-03-029r0 and 11-02-0677r1

    Motion passes unanimously to counter #26, #27

    d. Resolves comment # 49,210,529,702 – Decline – This approach would depart from the framework being used in the already approved 802.11h and adopted by 11k, where one report is the response to one request. The commencer's proposal is an optimization that could be addressed as a future amendment.

    Motion passes unanimously to decline 49,210,529,702

    e. Resolves comment # 53, 54,55,56,57,58,176,177,178,179,180,181,182,219,220, 221,222,223,224,225,538,539,540,541,542,543,544,711,712,713,714,715,716,717

    f. Recommendation - Decline – The existing text does not explicitly state the inverse of the stated condition because it is believed to already be clear what it would be. As the

commencer's question suggest, the first phrasing "element shall be present if" implies that if the condition is not true the element may still be present and the third phrasing "element shall be present only if…" does disallow the presence of the element when the condition is not true. Furthermore, this follows the approach taken in the already approved 802.11h which serves as a model for the 11k amendments.

g. Note - These 34 comments really apply to clause 7.2.3.1 (not 7.3.2.1 as comment #55 stated) and other subsections which apply to this type of comment, such as subsections 7.2.3.4 - 7.2.3.9.

   Motion passes unanimously to decline the comments listed above.

h. Resolves comment # 62 – accept - Change the 2nd to last sentence of section 7.3.2.18 so it reads "The TPC Report element is included in TPC Report frames, as described in 7.4.1.4; Link Measurement Report frames as described in 7.4.2.4; Beacon frames, as described in 7.2.3.1; and Probe Response frames, as described in 7.2.3.9."

   Motion passes unanimously to accept comment #62.

i. Resolves comment # 73 – decline - Since the TG has decided to remove the Request IE from Association Request, there is therefore no need for it also in Re-association Request

   Motion passes unanimously to decline comment #73.

j. Resolves comment # 76 – decline - The commenter states the text in subsection 7.3.2.21.7 implies a request to measure for a particular frame, but the section does not actually say that anywhere. Based on figure k5, the frame request fields are channel number, regulatory class, randomization interval and measurement duration. See comment #79 for clarification.

   Motion passes unanimously to decline comment #76.

k. Resolves comment # 79 – counter - Change the text in the last box of figure k15 so that it reads ' Number of Unicast Data frames' and change the last sentence of 7.3.2.22.7 to the following: "Number of Unicast Data Frames is a count of the individual unicast data frames received with the indicated Transmit Address and BSSID during the measurement duration."
   - Question – Is the data only? Answer – this is the intention.
   - Comment – It could be management as well.

   Motion passes unanimously to counter comment #79.

5. Technical Presentation – LB 73 Comment Resolutions – Kwak - 11-05-0689r3 (PPT)
   a. Motion

   Motion

   Move to instruct the editor to include 05/440r1 RCPI comment resolution in the next 11k draft.

   Moved: Kwak
   Second: Gray

   For: 9 Against: 0 Abstain: 5

   Motion passes

** PG – update 441r0 in master spreadsheet as r49*

6. Technical Presentation – LB 73 Antenna Comment Resolutions – Kwak - 11-05-0716r0, 11-05-440r1 11-05-435r2 (PPT)
    a. Resolves Comments – 299, 465, 756, 757, 868, 1013, 1233, 1452, 1502, 1588, 1594, 1601, 1602
    b. Comment – there is already antenna number in the base text
    c. Comment – There is an error in section 7.3.2.29
    d. Comment – If you are going to redo this document then can you take out the duplicated wording
    Straw Poll
    Would agree with deleting the repeated text?
    For: 10 No: 1

7. Simon Black calls for the orders of the day

8. Meeting in recess until 13:30 tomorrow.

07/21/05 13:30 Session:

Meeting called to order at 13:33

1. Discussion regarding on recessing until after the TGn vote
    a. Motion
    Move to recesses until after TGn vote

    Move: Lefkowitz
    Second: Duran

    Discussion
    Question – How do we know there is a vote?

    Chair rules the motion out of order and sends liaison to determine if there is a vote scheduled for TGn. Liaison returns to inform chair that it is only a vote on "single stream device".

    Motion withdrawn
2. Modified agenda
    a. Vote on antenna and statistic comment resolutions (Kwak)
    b. PICs (Black)
    c. Beacon Request (Black)
    d. Triggered QoS (Black)

    Motion to approve agenda passes unanimously

3. Technical Presentation - Enabling Neighbor Report for Multiple ESSs – Lefkowitz – 11-05/0664r1
    a. Comments - regarding "validated" vs. "regular" neighbour
    b. MartyL - I've noted a mistake with deleted "shall" in 11.8, and I shall update this.
    c. Question - This report will contain a "validated neighbor AP" plus a "neighbor AP", so the table is made up of both? Answer - I see it as only validated neighbors. Then we're only doing half of what we set out to do. There is no text showing that a neighbor is the combination of these definitions.
    d. Comment - We should be using the term "validated neighbor AP" everywhere, which is what we discussed yesterday. Answer - I tend to agree with Roger. There is a difference between validated and neighbor AP.
    e. Comment - I believe that any neighboring AP with overlapping coverage should be on the list. We are "morphing" the definitions.
    f. Comment - Introducing the term "transition candidates" complicates the issue.
    g. Comment - Let's not fight against logic. If we don't express this clearly, we'll just get lots of comments.
    h. Comment - If we added "AP" to 3.57 would that satisfy you? We need to know the difference between someone we could roam to as opposed to someone validated to roam to.
    i. Comment - We need the two definitions linked together.
    j. Comment - This work is good and I support it. This is a detail. If someone chose not to validate neighbors and chose to broadcast neighbors, we should allow that. What does validated "guarantee"? What exposure would occur if transfer is conducted to one not validated?
    k. Comment - It would be equivalent to a beacon report. It would open the "rogue" issue. We decided you would only give information that's useful to clients. Rogues simply would cause scanning problems, etc.
    l. Comment - Knowing neighbors by itself has value. I see no burden.
    m. Comment - The cache for the beacon report could be stale, so information could be wrong.

n. Comment - It's very important to define this correctly. We have to carefully define the table. We should be very sure if we make an entry.
o. Comment - We should also consider battery power. I'd like to see the entries sequenced for most value first. Answer - How do you know the list has actually been validated? It doesn't matter if somebody chooses to override this. I consider any list validated.
p. Comment - I think we're reading too much into "validated". I suggest "sanctioned" (by the AP) as a candidate for transition.
q. Motion

Motion

"Move to instruct the editor to include 05/664r1 Neighbor Report changes in the next 11k draft. Change the crossed out "shall" to a valid "shall" in the 3rd line. In Clause 3, Validated Neighbor definition, add the acronym AP after the word "Neighbor" in the second line."

Moved: Lefkowitz
Seconded: Sudheer

For: 11 Against: 0 Abstain: 11

Motion passes.

4. Technical Presentation – Normative Text for Advanced Antennas – Kwak – 11-05/0434r4 & 11-05/716r0 (xls)
   a. Comments - This document treats a mistake in the antenna identification and now has only one place where the antenna is referenced. In the rest of the draft the Antenna-ID field references a particular antenna.
   b. Address comments - #299, 465, 756, 757, 868, 1013, 1233, 1452, 1502, 1558, 1594, 1601, and 1602.
   c. Motion

Motion

"Move to instruct the editor to include 05/434r4 Antenna comment resolution in the next 11k draft"

Moved: Kwak
Seconded: Durand

Discussion

Comment – suggest numbering scheme be made consistent for all modes of antenna operation.

For: 16 Against: 0 Abstain: 1

Motion Passes

5. Technical Presentation – Statistics Reports – Kwak – 11-05/0761r0 (xls) & 11-05/0762r0 (text)
   a. Comments - These documents address the problem of omission of how to format statistics reports. It adds new statistics groups (addressing LB71, LB73 comments) as well. To formulate the recommendation, I looked at other areas of MIB that contain interesting operational parameters the station has defined. We were deprecating SNMP in the station; the statistics request is the only way one could get information back alternatively. These additions address about 5 other comments referencing other parameters that need to be exchanged. We have new field elements to handle the field coding, we've added a paragraph describing field definitions, and then later a table that shows the format of the station statistics request. We've also covered the case where certain PHY data is not defined. Any

requested data not defined is set to FF. We subsequently describe each group, and then the formats used. The request provides a duration-related statistic where delta measurement is relevant with a way to do that (counter-based). Normative text is provided.

b. Comment- At the top of page 6, in the first table, the 1st element description doesn't match description below. (Page 6 line 4) The text should be modified starting with "fragmenrtMSDU…" should be "TransmittedFragment".
c. Comment - One set of comments on the spreadsheet reference WNM, and others refer to TGk. Do we want to put in more features for TGk now? Things like TX power?
d. Comment - I looked at the station statistics, and the measurement request infrastructure is not really set up to do this (also some data are not really statistics). Every time I want to get information, I cancel the old statistics request in progress, and so would have to restart them. There are enough TGh things in there now that this seems inappropriate to what it has to do now. I worry about whether this is the right thing. Answer - Lengthy discussions on SNMP seem to show that this is the only way stations that won't support SNMP can get data. It seems like it would be better to allow this to be a baseline and let TGv work ahead with it.
e. Comment - If TGv doesn't need it, and we don't need it, it shouldn't be in here. Alternatively, if we feel this is needed, then we should take on the design role for providing a more generalized mechanism. Answer - At the current time, this is all we've got.
f. Comment - The statistics were needed and appropriate. The new data doesn't seem like it should be added.
g. Comment - "SNMP or not to SNMP" was discussed at length in Tgk. Measurements with duration were necessary, but couldn't be handled. That's why the method is in here. But I also see why Tim is concerned about the new parameters: their not statistics. I would rather see this handled in TGv if they wish to undertake the design.
h. Question - Emily: Aren't these changing things in the MIB also? Answer - We would have to modify the MIB as well. Answer (JoeK) - Yes that would have to be added.
i. Comment - The counters give you accumulating measurements at the station, and provide radio parameters over a period of time, not specific values. Answer - I disagree. All of the parameters are values that change at times. I believe this to be a legitimate "Get" mechanism.
j. Question - Why wouldn't you make a single request for each parameter?
k. Question - What if you want two measurements simultaneously? A TGv "Get" would be an example of such an overlap. And SNMP wouldn't be able to do that. Moreover, parameters such as TX power would seem to be a nearly-constant number.
l. Straw poll

   Poll

   "Do people feel that the STA Statistics measurement should be used to receive information from a STA MIB?"

   Yes: 10 No: 3 Abstain: 4
m. Motion:

   Motion

   "Move to instruct the editor to include 05/762r0 STA Statistics normative text in the next 11k draft."

   Moved Kwak
   Second: Zuniga

   Discussion
   Comment - I speak strongly against because of complications.
   Comment - I speak for the motion. The mechanism seems useful as good minimum capability, with low liability. It also sets a "stake in the ground". If the mechanism is useful it can be improved.
   Comment - I speak against because it changes the process of resolving comments.

Comment - I would prefer to see the discussion continue in TGv instead.

For: 3 Against: 9 Abstain: 3

Motion fails

6. Teleconference Empowerment
    a. Motion
    Motion
    "Move to request the Working Group to empower TGk to hold weekly teleconferences (Wednesdays at 11:30 am Eastern time) through 2 weeks after the Anaheim meeting as required to conduct business necessary to progress the Letter Ballot process, including creating and issuing drafts for Letter Ballots and handling other business necessary to progress through the IEEE standards process."

    Moved: Black
    Second: Barber

    Discussion
    Comment - I suggest shortening the meetings and moving them. We should make them only 1 hour long and reschedule to avoid conflicts with WiFi meetings. I recommend changing the date to Thursdays.

    Friendly Admendment
    "Move to request the Working Group to empower TGk to hold weekly teleconferences (**Thursdays** at 11:30 am Eastern time) through 2 weeks after the Anaheim meeting as required to conduct business necessary to progress the Letter Ballot process, including creating and issuing drafts for Letter Ballots and handling other business necessary to progress through the IEEE standards process."

    Moved: Black
    Second: Barber

    For: 8 Agianst: 0 Abstain: 5

7. Ad-hoc Meeting Empowerment
    a. Comment – suggest we postpone until after we decide whether we want to have another letter ballot
    b. Motion tabled until after letter ballot decision.

8. Meeting recess until 16:00 today

07/21/05 16:00 Session:

Meeting called to order at 16:00

1. Technical Presentation – PICs Comment Resolutions – Black – 11-05/0679r1 (text) & 11-05/05/0678r0 (xls)
    a. Addresses Comments – 21, 93, 168, 173, 174, 574, 678, 679, 761, 772, 874, 978, 1073, 1074, 1212, 1213, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1358, 1437, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553
    b. Motion

    Motion

    "Move to instruct the editor to include 05/679r0 PICS normative text in the next 11k draft"

    Moved: Black
    Second: Ecclesine

    For: 13 Against: 0 Abstain: 2

    Motion Passes

    PG – Updated master spreadsheet in r47

2. Technical Presentation – SSID in Beacon Measurement – Black – 11-05/780r0 (text)
    a. Addresses Comments – 110, 690, 873, 969, 971, 1119
    b. Comment - The document provides details resolving comments related to beacon measurement requests.
    c. Motion

    Motion

    "Move to instruct the editor to include 05/780r0 SSID in the Beacon Measurement normative text in the TGk draft"

    Moved: Black
    Second: Qi

    For: 15 Against: 0 Abstain: 2

    Motion Passes

3. Editor's Comment Resolution
    a. Comments #19, 63, 123, 174, 198, 285, 418, 597, 662, 665, 666, 667, 668, 909, 910, 1006, 1035, 1108, 1160, 1191, and 1279 in document k9-11-05-0191-22-000k-lb73-comment-spreadsheet provide insufficient information for the editor to take action, and I would like your clarification of intent.
    b. Comment - #19 has a resolution listed in his copy of k9. Simon incorporated that into his k9 version.
    c. Comment - #123 resolution doesn't give clear instructions on what to do with the text. Answer - The resolution says "replace text"… Editor - But the second quotation in the resolution is confusing.
    d. The group concludes #123 is already done via previous resolution.
    e. Comment #174 is also already done, as is #198.
    f. Comment #285 still needs to be looked at, as the assumed resolution on #284, the "previous resolution", refers to a different clause.
    g. The resolution in #285 must have referred to a different comment that was reordered.

h. #418 requests change of capitalization from the base standard. The editor feels this could be a problem, so hesitates to do this. Does anyone have capitalization changes in addition to this one? Editor would prefer to not handle now. Group decides this should be handled in TGma.
i. Comment - I suggest we defer this to the editorial staff.
j. Editor - I suggest that we resolve by replying "due to the activities currently going on in 11m, we have decided to defer review of capitalization. If there are specific instances in new 11k text, please be specific in the next letter ballot"
k. Motion
Motion
"No objection to accepting the comment with the above resolution? "

Approved unanimously
l. Comment#597 - the group decides to replace station with STA only in 5.25 only.
m. Comment #662 text is needed to tell the editor what to do. Editor has included "j" in the base document list on front page, and added 802.11j to the amendment list. The group feels the intent of response has been met by these changes.
n. Comment #665 the editor must consult style manual. Likewise on #666, #667, and #668.
o. Comment #909 the editor didn't take action because he was unsure of intention of group. The editor wants to confirm that the response is actually what group wants to do. Editorial discretion allows it to be ignored as all affected references are from "h". In #910 there is a similar difficulty. All "k" material would have to change. The group decides comments should be declined because they are tied to specific type of measurement. All other similar indicators (RSSI, RPI) are indicators and this is a comparable measure.
p. Comment #1006 is classified along with others, but appears to be different. Editor will remove affected lines.
q. Comment #1035 requests that IAPP added to acronyms. The group suggests using lower case letters and spell out inter access port protocol to avoid coupling to the recommended practice of "f".
r. Comment #1108 is changed because commenter accepts "decline".
s. Comment #1160 requests to duplicate text from 11h and add to k. The group and Simon Black (commenter) decide to leave this comment outstanding.
t. Comment #1191 changes "station" to "STA". The group and Simon Black decide to decline providing the resolution "comment provides insufficient information".
u. Comment #1279 is already done.
v. Simon - This leaves 4 outstanding comments and concludes the comments I currently had flagged.

4. Technical Presentation – Simple SNIR – Kwak – 11-05/0779r0 (PPT)
a. Comment – The document addresses need for signal quality metric for links. There is a need to measure link "goodness" so that roaming can be supported. TGk needs a fast quality metric. Packet-error based metrics take too long to collect.
b. Straw Poll
Poll
Do you support a simplified RSNI signal quality measure like 05/779r0"

Yes: 16 No: 5 Abstain: 4

5. Technical Presentation – Triggered QoS Measurements Normative Text – Black – 11-05/512r2 (text)
a. Comment - The document outlines changes to averages based on MSDU windows instead of time. If a measurement is triggered and begins measurement and then gets another trigger before the average is complete, the average up to that time is reported. The document also covers suspension of a measurement in progress.
b. Addresses Comments – 11, 641, 755, 813, 816, 907 and 1187

c. Comment - Issues: suspension behavior, use of "triggered" when it is really a "background" measurement and background measurement embedded only into this measurement. Coupling this to 11.11.6 could allow benefit to other measurements as well, e.g. QoS and statistics.

d. Motion

Motion

"Move to instruct the editor to include 05/512r2 Triggered QoS Measurements normative text in the next 11k draft."

Moved: Black
Second: Jokela

For: 11 Against: 1 Abstain: 10

Motion Passes

6. Review of Timeline

a. Chair - Our work timeline says we intend to go to letter ballot this session, and re-circulate next time. Are we going to letter ballot with some 500 comments outstanding? I have prepared a candidate motion if we wish to proceed.

b. 1603 comments we still have almost 120 deferred (that we needed to have addressed at this meeting), with 470+ blanks as well. Most of the latter are those we've recently looked at.

c. Motion

Motion

"Take 11k draft 3.0 to the working group for 40 day Working Group Letter Ballot"

Moved: Emily Qi
Seconded: Joe Kwak

Discussion
Question – Why do we need to do this? Answer – We do this to sample the direction the group feels is appropriate.
Question – Repeat previous question
Comment – The 802 process requires this determination by working groups.
Comment – I speak against this motion.
Comment - We are not close enough to resolving all the comments to go to letter ballot.

Simon Black calls the question

For: 0 Against: 19 Abstain: 4.

Motion fails.

7. Revisit Ad-hoc Empowerment

a. Motion

Motion

"Move to request the Working Group to empower TGk to hold an ad-hoc meeting in Seattle for 9/14-16 (Paine) as required to conduct business necessary to progress the Letter Ballot process, including creating and issuing drafts for Letter Ballots and handling other business necessary to progress through the IEEE standards process."

Moved: Kwak
Seconded: Black

For: 4 Against: 0 Abstain: 16

Motion Passes

8. Approval of Ad-hoc and Teleconference Comment Resolutions
    a. Paul Gray has provided a document listing all resolutions in 05/743r3. He extracted all of the comments and shows resolution from 24, 39 etc. versions of spreadsheets.
    b. Motion

    Motion

    "Move to accept the Cairns through Brisbane "accepted", "counter" and "declined" comment resolutions in the next 11k draft. They are documented in 05/743r3"

    Moved: Kwak
    Seconded: Black

    For: 7 Against: 0 Abstain: 8

    Motion Passes

9. Closing
    a. Meeting adjourn at 18:04

Report of TGm – July 2005

DATE: July 2005				
Author(s)				
Name	**Company**	**Address**	**Phone**	**email**
Bob O'Hara	Cisco Systems	3625 Cisco Way, San Jose, CA 95134	408 853 5513	bob.ohara@cisco.com

Abstract

Report of the meeting of TGm at the July 2005 session.

Goals for July 2005

- **Process technical comments received during WG ballot**
- **Issue of draft to working group letter ballot**
- **Request conditional approval of the 802 Executive Committee to send 802.11REV-ma to Sponsor Ballot**

Submissions

- **Submissions**
  - 05/710, “WDS” Clarifications, Darwin Engwer
  - 05/777, Some LB75 letter ballot resolutions, Johnny Zweig

Proposed Agenda

- **Consent agenda:**
  - Approve minutes and report from May and June 2005 meetings
- **Review IEEE Patent Policy**
- **Review interpretation request procedure**
- **New business**
  - Submissions
  - Process technical comments from letter ballot
  - Issue new draft for recirculation ballot
  - Place new draft for sale by IEEE
- **Adjourn**

Motion #1 to adopt Agenda

- **Moved: to adopt the agenda**
- **Mover: Bill Brasier, Anil Sanwalka**
- **Passes: unanimous**

IEEE-SA Standards Board Bylaws on Patents in Standards

- http://standards.ieee.org/board/pat/pat-slideset.ppt

Interpretation Procedure

- **http://standards.ieee.org/reading/ieee/interp/**
- **Send email to Linda Gargiulo (l.gargiulo@ieee.org)**
- **IEEE forwards requests to the WG**
- **WG responds**

Motion #2

- **Moved: To accept all comment resolutions.**
- **Moved: Mike Montemurro, Mike Moreton**
- **Passes: Unanimous**

Motion #3

- **Moved: to instruct the editor to create 802.11REV-ma D3.0 by incorporation of all comment resolutions.**
- **Moved: Darwin Engwer, Mike Montemurro**
- **Passes: unanimous**

Motion #4

- **Moved: To send 802.11REV-ma D3.0 to working group recirculation ballot.**
- **Moved: Stephen McCann,Anil Sanwalka**
- **Passes: unanimous**

Motion #5

- **Moved: To instruct the chair of the 802.11 working group to make 802.11REV-ma D3.0 available for sale.**
- **Moved: Anil Sanwalka, Mike Moreton**
- **Passes: unanimous**

Motion #6

- **Moved: to authorize Task Group m to hold ballot resolution meetings upon closure of the recirculation ballot on 802.11REV-ma D3.0 and issue a new draft (802.11REV-ma D4.0) upon resolution of all comments.**
- **Moved: Mike Montemurro, Stephen McCann**
- **Passes: unanimous**

Motion #7

- **Moved: To authorize sending 802.11REV-ma D4.0 to working group recirculation ballot, if necessary, upon its completion by the editor.**
- **Moved: Anil Sanwalka, Mike Montemurro**
- **Passes: unanimous**

Motion #8

- **Moved: To authorize Task Group m to hold ballot resolution meetings, if necessary, upon the close of the recirculation ballot on 802.11REV-ma D4.0.**
- **Moved: Mike Moreton, Mike Montemurro**
- **Passes: unanimous**

Motion #9

- **Moved: To request conditional approval to send 802.11REV-ma to sponsor ballot upon conclusion of a working group recirculation ballot that meets all requirements in the LMSC Policies and Procedures.**
- **Moved: Darwin Engwer, Anil Sanwalka**
- **Passes: unanimous**

Motion #10

- **Moved: To authorize the 802.11 working group chair to send 802.11REV-ma to sponsor ballot, upon successful completion of a working group recirculation ballot that meets all requirements for conditional approval as set forth in the LMSC Policies and Procedures.**
- **Moved: Stephen McCann, Mike Montemurro**
- **Passes: unanimous**

Work completed

- **Lots of comments processed**

Summary

Technical Comments at Start	**135**
Technical Resolutions Adopted	**135**
Technical Comments Remaining	**0**
Percentage completion	**100%**

Output Documents

- **05/0709r0: Report of comments and resolutions**
- **05/0708r0: This report**
- **802.11REVma-d3.0: to be available soon**

Goals for September

- **Depends on the outcome of the recirculation ballot(s)**
- **Process any interpretation requests received**

Adjourn

- **Meeting adjourned at 5:30pm on May 19, 2005**

Attendees

- **Bill Brasier**
- **Darwin Engwer**
- **Anil Sanwalka**
- **Tom Tsouligiannis**
- **John Rosdahl**
- **Donald Eastlake**
- **Mike Montemurro**
- **Mike Moreton**
- **Stephen McCann**
- **Johnny Zweig**

IEEE P802.11
Wireless LANs

[Minutes of High Throughput Task Group .11n Session]

Date: 2005-07-18

Author(s):

Name	Company	Address	Phone	email
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Abstract

Cumulative minutes of the High Throughput Task Group meetings held during the IEEE 802.11 Interim session in San Francisco from July 18 through 22, 2005. The session was chaired by chair person elect Bruce Kraemer from Conexant.

Executive Summary (also see Chairs' meeting doc 11-05-0557r1 and closing report doc. 11-05-0760r0):

1. **Proposal Updates were received from MITMOT (11-05-0735r0), TGn Sync (11-03-0888r13) and WWiSE (11-05-0737r1).**
2. **Formal announcement to merge by MITMOT-TGn Sync-WWiSE (MTW) was made.**
3. **MTW opening report (11-05-0688r0) gave their time line goal as:**
    a. **July – Formal announcement of Joint Proposal (JP) team and activities**
    b. **Sept. – Draft JP**
    c. **Nov. – JP for Confirmation Vote**
4. **MTW closing report (11-05-0786r0) updated progress and process.**
5. **Coexistence Assurance ad hoc committee gave a verbal update and will not be having CCs between July and Sept. meetings.**
6. **Single Spatial Stream Devices (S3D) ad hoc committee completed its work (see 11-05-0599r5) and will not be having CCs between July and Sept. meetings.**
7. **One of the alternatives to modify the FRs proposed by S3D was adopted namely - FR10 and FR11 were created to reflect the requirements of S3Ds and facilitate interoperability testing by WFA.**
8. **The Functional Requirements (doc. 11-03-0813r13) were updated.**
9. **Two technical presentations were received:**
    a. **"802.11n Radio Test Bed" from UCLA (doc. 11-05-701r2)**
    b. **"Novel Soft MIMO-OFDM (802.11n) Receivers" from Un. of Utah (doc. 11-05-790r1)**
10. **Agenda for September will include a progress report from MTW (to be put on .11n reflector Sept.12) and time for Q&A. Also, in Sept. a motion will be made to form a liaison with WFA to facilitate interoperability testing of .11n devices.**

Note: 1) Relative to presentations, these minutes are intended to offer a brief summary (including document number) of each of the presentations to facilitate review and recall without having to read each of the presentations. Most of the 'presentation related' minutes are built directly from selected slides and therefore are not subjective. An effort was made to note obscure acronyms.

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Detailed cumulative minutes follow:

Monday; July 18, 2005; 4:00 AM – 6:00 PM [~ 170 attendees];

1. Meeting was called to order by Task Group chairperson at 4:03 PM
2. Chairs' Meeting Doc 11-05-0557r0
3. Chair read IEEE-SA Standards Board Bylaws on Patent Policy and additional Pat Com Guidance
4. Chair reviewed topics NOT to be discussed during the meeting – licensing, pricing, litigation, market share

5. Attendance reminder – for this meeting attendance will be manual and on an honour system
6. Chair reviewed May-July progress up to the start of this meeting in order to provide the background to set the agenda for this meeting:
   6.1. from May meeting in Cairns and interim period; slides 9, 10, 12, 13
   6.2. selection procedure reviewed as a result of failure of confirmation vote #2
   6.3. Technical editor election postponed until single proposal passes 75% hurdle
   6.4. Initial version of July agenda would be a repeat of January agenda
   6.5. Single Spatial Stream ad hoc conference calls held
   6.6. Coexistence Assurance CCs held
7. **Motion by Jon Rosdahl to approve May minutes, 11-05-0416r2, was seconded by Aon Mujtaba approved unanimously**
8. Chair discussed agenda for this meeting (granted 18 hours total):
   8.1. Reviewed selection criteria and suggested we focus on step 11 re: mergers
   8.2. Suggested agenda as follows:
      8.2.1. Monday 4-6 PM establish agenda
      8.2.2. Tuesday recess for two morning sessions
      8.2.3. Tuesday 1:30-3:30 PM – UCLA presentations and Proposal Updates
      8.2.4. Tuesday 4:00-6:00 PM – Proposal Updates and Single Stream Update
9. Chair invited spokespersons for each of the proposal teams to give their updates
10. Representatives spoke on behalf of the three proposal teams (Mitmot, Tgn Sync and WWiSE – MTW) 11-05-0688r0
    10.1. Aon Mujtaba - Have held four F2F meetings since May meeting - June 13, 30, July 15, 17 and intermediate conference calls
    10.2. Sean Coffey – Tentative mechanics will be a mixture of global design guidelines and detailed draft text
    10.3. Marc de Courville – merger team would like the TG to grant the team 'closed' time at this meeting to work on the merged proposal
    10.4. Time Line Goal – draft Joint Proposal for Sept meeting and confirmation proposal for confirmation vote in November
11. **Motion by Aon Mujtaba and seconded by Amer Hassan as follows – Because the TGn selection process allows proposals to ask for time to complete mergers prior to consideration, M&T&W *request* time to complete a merged Joint Proposal (JP) that will replace the current three remaining TGn proposals.**
    ***Anticipated* Time Line –**
    ***July 2005 – provide time this week (11-05-557r0; Bruce's opening report) for these groups to go work on this effort**
    ***Sept 2005 – JP draft will be provided to TGn; Q&A sessions on JP to that time**
    ***Nov 2005 – JP replaces current 3 proposals; confirmation vote on JP**
12. Questions:
    12.1. Will the meetings be closed? A – yes, just as they have been up to now in that the three teams met individually
    12.2. Are there tasks the TG could contribute to now to help the process and conserve time? A – will consider
    12.3. Motion should be made tighter wrt times and language by eliminating the words in italics in the original motion?
13. **Motion Amended by Ken Clements and seconded by Johnny Zweig to change the italicized words in the main motion so that the motion now reads:**

Because the TGn selection process allows proposals to ask for time to complete mergers prior to consideration, M&T&W are granted time to complete a merged a Joint Proposal (JP) that will replace the current three remaining TGn proposals.

Time Line –

***July 2005 – provide time this week (11-05-557r0; Bruce's opening report) for these groups to go work on this effort**

***Sept 2005 – JP draft will be provided to TGn; Q&A sessions on JP to that time**

***Nov 2005 – JP replaces current 3 proposals; confirmation vote on JP**

14. Motion to amend Passed unanimously

15. Back to Questions/Comments:

15.1.1. This proposed process is not out of scope and input has been requested

15.1.2. Updated proposals from each of the teams have been put on server but no comments have been received

15.1.3. Proposers have made significant progress; let them continue

15.1.4. In fact holding 'off-line' meetings is the most efficient use of our time

15.1.5. Must balance public and private; for last year it has been an extremely public process, we now need time for some private time

15.1.6. Recall, all 3 of the original proposals were created in private and the group of three is now asking for private time

15.1.7. Will the group of 3 represent 75%? A – no guarantees but odds are good given the membership of MTW.

15.1.8. What happens if group cannot reach consensus on some issues? A – many options are available including restart or disbanding and asking for help from the TG.

15.1.9. The process will not be perfect but this is a good one

15.1.10. Question was called without objection

15.2. Chair noted the motion not procedural and therefore will require a 67% majority (per the selection procedure)

16. Main Motion as amended passed (195,2,3) the 75% hurdle as defined in our selection procedure

17. Back to the agenda creation discussion:

17.1.1. Thursday recess for two AM sessions

17.1.2. Thursday 1:30-3:30 PM – CA status, Merger Status

17.1.3. Thursday 4-6 PM – Planning for September meeting

17.2. Motion to accept the agenda by Jim Petronovich and seconded by Aon Mujtaba passed without discussion and unanimously

17.3. Sheung Li gave a verbal report on the CA ad hoc committee:

17.3.1. .19 has voted against a .15 move to Sponsor Ballot because it did not have a CA document

17.3.2. Two .11 SGs have been delayed from Excom consideration because they did not file a CA doc

17.3.3. Bottom line - 802 is taking Coexistence seriously

17.3.4. .19 Tues 8-10 and Wed 8 – 6 PM meetings in Pacific K room will be devoted to Coexistence Assurance and in particular tutorials on radios from outside .11; you are invited to attend

17.4. Single Stream ad hoc committee update by Marc de Courville (11-05-0559r4)

17.4.1. Recall goal was to investigate making modifications to the Functional Requirements (FRs) to reflect existence and importance of one-stream devices and vote on the modifications

17.4.2. Conference calls were held on 6/1,15 and 7/7

17.4.3. Methodology:
- 17.4.3.1. find a global and generic definition describing devices in this class
- 17.4.3.2. identify necessary and feasible changes to the functional requirements
- 17.4.3.3. check consistency with the PAR

17.4.4. Classes of devices included Handhelds and printers (rough definition - non APs which support single streams)

17.4.5. Alternatives to discuss:
- 17.4.5.1. Add a new FR entitled "Compatibility with single spatial stream devices"
- 17.4.5.2. Modify FR1 & FR2
- 17.4.5.3. Form another SG

17.4.6. Chair reviewed Current PAR for reference

17.4.7. Marc identified FRs that could be affected – FR1, 2, 9

17.4.8. Marc recommended adding a new FR

17.4.9. Marc reviewed the pros and cons of each alternative

17.5. Questions:

17.5.1. Who participated in the ad hoc? A – Samsung, Motorola etc

17.5.2. Will it be part of the merger discussions? A – yes

17.5.3. Will satisfying handset req'ts impact the merger? A – all the ingredients are there now so it should not have an impact

17.5.4. What will WFA do? A – outside scope of IEEE

17.5.5. Advantage of doing this in TGn, i.e., option 1 or 2.

17.5.6. If we select option 1 we should formalize a WFA liaison on this topic

17.5.7. More discussion? A- yes Tuesday afternoon

17.5.8. Chair recessed the meeting until Tuesday at 1:30 PM

Tuesday; 7-19-05; 1:30-6:00 PM

1. Chair called the session to order at 1:30 PM
2. Presentation: Experiments with an 802.11n Radio Test Bed; UCLA UnWired Lab (11-05-0701r2); David Browne
   a. MIMO-OFDM test bed
   b. Demo – real time using IP; test bed was in LA lab
   c. Method: simultaneous channel sounding and data transmission during super frames
   d. Uses robots to span 'space' at each measurement co-ordinate
   e. Metrics: FER vs capacity
   f. Matlab on Linux issue co-ordinate commands
   g. Showed images of test equipment
   h. Performed real time demonstration
   i. Common Channel Sounder Alternatives
      i. Delay domain to measure impulse response
      ii. Swept frequency
   j. Disadvantages:
      i. Requires Time Synchronization
      ii. Difficult to detect co-channel interference (CCI)
      iii. Not based in .11n radios
   k. Proposed Method
      i. Space-frequency Orthogonalization
   l. Advantages:

i. Does not require time sync of TX and RX
ii. Able to detect CCI during measurement
iii. Integrated into test bed
iv. Per packet
v. Watch out for PAPR issue (use circular buffer)

m. At RX
i. Use 2K point FFT
ii. RX signal and noise separated
iii. Explained CCI when interferers were .11b and BT

n. Calibration scheme use known channels
i. Fully correlated channels
ii. Uncorrelated channels

o. Results (Weijun Zhu); Parameters
i. Indoor
ii. LOS and non LOS
iii. Variable TX power
iv. Linear array of dipole antennas w/.5 lambda separation
v. 10 time separated measurements at each grid point

p. SISO – capacity proportional to SNR (averaged over frequency domain)
q. MIMO – capacity depends on eigen values of channel
r. Capacity is better characterization of performance (error rate profile) since accounts for both SNR and Channel Structure
s. Parameters for Experiment (Close to WWiSE)
i. WWiSE LDPC and BCC
ii. 2x2 and 2x3 data signaling
iii. 4x4 Channel Sounding
iv. Rate ½, 2/3, 5/6
v. 16 QAM and 64 QAM
vi. MIMO Preamble based on Hadamard Sequence
vii. Orthogonal Pilot Tones
viii. 1000 info Bytes per data packet

t. Results (FER vs Capacity)
i. LDPC vs BCC – LDPC is clear winner especially at high rates and non-LOS
ii. LOS vs non-LOS – LOS suffers at high SNR (some results confusing; explanation not obvious)
iii. 2RX vs 3RX antennas – 3 antennas much better wrt SNR but wrt Capacity little difference!! Capacity is better measure
iv. Modulation (16 QAM and 64 QAM)
v. Power – track until RX non-linearity dominates

u. Conclusions
i. Use Capacity instead of SNR as comparison metric
ii. LDPC better than BCC
iii. LOS degradation (need more investigation)
iv. Tracks theory

v. Questions
i. What was receiver architecture? A – MMSE

3. Proposal Updates:

a. TGn Sync; Aon Mujtaba; 11-04-0888r13; PHY [see glossary in presentation for acronyms]
    i. Mandatory features:
        1. Support for 1 and 2 spatial streams in 20MHz
        2. Channel coding rates: 1/2, 2/3, 3/4, and 5/6
        3. Modulations: BPSK, QPSK, 16QAM, 64QAM
        4. Support for Rx assisted Rate Control
        5. Guard Interval: 800ns
    ii. Optional features:
        1. 40 MHz channelizations
        2. STBC
        3. Transmit beamforming (Tx BF) - beamsteering
        4. Guard Interval: 400ns
        5. Advanced coding (LDPC)
        6. Support for 3 and 4 spatial streams
        7. 256-QAM
    iii. Modifications since May
        1. Introduced STBC
        2. Created MCS capability classes
        3. Made BF optional for both transmit and receive
b. TGn Sync; Adrian Stephens; 11-04-0888r13; MAC [see glossary in presentation for acronyms]
    i. Simplified
    ii. Changes since May
        1. Simplified Reverse Direction data
            a. Remove RDL/RDR/RDG signaling
            b. Single additional bit to grant RDG, re-use of existing Duration field
        2. Simplified Protection
            a. Pairwise spoofing replaced by simpler Extended PHY Protection (EPP) rules
            b. No additional signaling required
        3. Simplified and Improved Block Ack
            a. Two fixed sizes for BA bitmap depending on fragmentation
            b. Partial state bitmap option reduces implementation cost while providing benefits of immediate response
        4. Simplified Coexistence Management
            a. Removed modal behavior except for 20MHz-base operation
            b. Removed ICB/DCB frames and use existing frames to provide 20MHz-base operation
            c. Simplified text significantly
        5. Reduced number of and simplified control frames
            a. Removed ICB/DCB
            b. Most of functionality of IAC/RAC removed. IAC/RAC replaced by LAC
        6. EDCA performance now approaching HCCA performance
c. Mitmot Update; Marc de Courville; 11-05-0735r0
    i. Skewed focus on handhelds, hot spots, out doors

ii. MAC – orthogonal to nSync and WWiSE so will not elaborate
iii. PHY – exploit hybrid combination of SDM and STBC
iv. Dual-Binary Turbo Code particularly good for small block code sizes
    1. issue – SIFS constraint
    2. PAPR reduction based on pilot rotation can yield a 1.5 dB improvement in performance
v. Differentiators
    1. Capture wide range of environments/devices/applications:
        a. (full) home/enterprise/limited outdoor, handhelds/laptops, from VoIP to multimedia streaming
        b. Build in support for asymmetric TX/RX antenna configurations to accommodate various terminal sizes (PDA/Phone) offering a scalable and evolutionary solution
        c. Hotspot support: dedicated 128 carrier with double length cyclic prefix OFDM modulation, longer range achieved through hybrid STBC robust and SDM high peak rates modes
        d. .11n specific robust beacon enables materialization of new PHY mode range prediction
    2. Enhanced QoS using "Extended Centralized Coordination Function"
        a. Inherent clean split between legacy and .11n devices at MAC level
            i. with no need for mixed-modes transmission mode definition
        b. Resource allocation mechanism is highly dynamic
            i. QoS provided without use of traffic profiles (TSPECS)
        c. High Efficiency independent of application packet size through segmentation
        d. Robustness to error through retransmission mechanism on segmented packets
    3. Lower power operation:
        a. PHY power saving: PAPR reduction based on simple pilot rotation
        b. Enhanced transparency and predictability through broadcast grouped resource announcement
            i. yields clean low power implementation and low overhead
    4. New preamble definition: for simple & accurate AGC, time sync and easier quality/complexity tradeoff for CSI estimation
    5. Improved link adaptation: efficient interoperability through calibration and support of accurate link quality metrics

4. Chair recessed the meeting at 3:25 PM

5. Chair called the meeting to order at 4:00 PM
6. Sean Coffey gave the TGn WWiSE PHY update and Matt Fischer gave the MAC update; 11-05-0737r1;
    a. Summary of Proposed Changes

i. Power save mechanism
ii. HT Block Ack
iii. Coexistence of Extended Range (ER) devices with Non-extended Range (NR) devices
iv. Secondary Channel Element
v. Allowance and rules for zero-length PPDUs
vi. New LDPC code design
vii. Further beacon refinement

b. Summary
   i. High-performance PHY and MAC
   ii. Modularity and simplicity in PHY design
      1. Eases interoperability and verification, enables faster time to market and provides true scalability
   iii. Efficient, streamlined MAC extensions
      1. High performance, no unnecessary complexity
   iv. Well defined, stable technical specification
      1. Suitable for immediate use as Draft 1.0

7. Chair reopened agenda topic of Single Stream as lead by Marc de Courville
   a. Marc summarized the three Options:
      i. Add new FR10 to enable WFA mapping for S3D (single spatial stream devices)
      ii. Modify FR1 and FR2 to allow full materialization of S3D but would require a PAR change
      iii. Defer to another SG/TG
   b. What would a PAR modification entail?
   c. Chair responded:
      i. PAR would have to change to deal with relaxation of 100 Mbps requirement for S3Ds
      ii. Vote on PAR change this week in TG and WG would require 75% approval
      iii. Time line:
         1. Excom approval at November meeting
         2. Place on NEScom agenda in October
         3. NEScom could approve in December
   d. Questions:
      i. Was there impact in .11m when its PAR was changed? A – absolutely none
      ii. Would September work for TG/WG approvals instead of this meeting? A – yes, no impact on time line since October for NEScom agenda is gating item
8. Results from ad hoc group straw votes were:
   a. #1 (37,0,17)
   b. #2 (23,29,9)
   c. #3 (11,21,24)
9. Straw Poll was held in this session with the results as follows:
   a. Option 1 - Add a new FR10 to enable easier WFA mapping for S3D (67,9)
   b. Option 2 - Propose a change to the PAR in addition to modifying FR1 and FR2 in order allow full materialization of S3D in 11n (18,43) and eliminate dependency on WFA

c. Option 3 – Do nothing in .11n (3,31)

10. Motion by Marc de Courville and seconded by Jim Petronovich to
Add a new FR10 to enable easier WFA mapping for S3D
Name: Compatibility with single spatial stream non-AP stations (S3Ds)
Requirement: 11n APs or STAs shall support and be compatible with non-AP stations complying with the .11n standard with the exception of only supporting the single spatial stream transmission modes of the .11n standard and shall demonstrate at least one mode of operation that provides a throughput at least 50 Mbps (at the MAC Data SAP).

a. Discussion:
   i. Against motion since S3Ds will be accommodated in any case – if it ain't broke don't fix it!
   ii. Wording not appropriate

11. Motion by Jon Rosdahl to postpone the motion until 1:30 block on Thursday was seconded by Joseph Levy

a. No discussion
b. No objection to postpone

12. Chair recessed until 1:30 PM on Thursday

Thursday; 7-21-05; 1:30 – 6:00 PM

1. Chair reconvened the meeting at 1:32 PM
2. Marc de Courville continued with Single Stream Decision; (11-05-559r5)
   a. Proposed to split into two new FRs:
      i. New FR10 Proposed:
         1. **Name:** *Existence* of single spatial stream transmission modes
         2. **Requirement:**
            a. Proposal shall define single spatial stream transmission modes that provide at least one mode of operation that supports a maximum throughput of at least 50 Mbps in a 20MHz channel as measured at the MAC data SAP.
      ii. New FR11 Proposed:
         1. **Name:** *Interoperability* with single spatial stream non AP stations
         2. **Requirement:**
            a. An .11n AP or STA shall interoperate with a single spatial stream entity defined as a non-AP STA that complies with the .11n proposal with the exception of only supporting single spatial stream transmission modes as required by FR10.

3. Motion by Marc de Courville (Motorola) and seconded by Eric Tokubo (Symbol Technologies) to: adopt new revision of document 11-03-0813-13-000n-Functional-Requirements containing the following changes: addition of FR10 and FR11 where:

i. FR10: Existence of single spatial stream transmission modes
ii. Requirement:
   1. Proposal shall define single spatial stream transmission modes that provide at least one mode of operation that supports a maximum throughput of at least 50 Mbps in a 20MHz channel as measured at the MAC data SAP.
iii. FR11: Interoperability with single spatial stream non-AP stations

iv. **Requirement:**
1. **An .11n AP or STA shall interoperate with a single spatial stream entity defined as a non-AP STA that complies with the .11n proposal with the exception of only supporting single spatial stream transmission modes as required by FR10.**

b. Discussion:
i. Is this 50 Mbps Over-the-Air (OTA)? A – no; it is at the MAC Data SAP and therefore the OTA rate would be greater than .11a/g
ii. In favor because two years ago this opportunity was not as high profile but now it is and so it is good we are recognizing it at this time
iii. In favor because not much extra development work
iv. Consistent with definitions in current FR document per Adrian Stephens

c. Motion passed: (110, 0, 7) as it meant the 75% threshold

4. Adrian Stephens said he would update the FR doc and post it to the server as doc 11-03-0813r13
5. Coexistence Assurance (CA) status update by Sheung Li; he noted three important .19 documents 19-05-018 on BT and 19-05-025 on WiMax and 19-05-026 on Cordless Phones
    a. The CA group meeting minutes are in doc 11-05-792r0
6. Merger update by Aon Mujtaba, Chris Hansen and Marc de Courville (doc. 11-05-0786r0)
    a. Process to update has been adopted
    b. Agreed on tools (dates and locations for meetings and web tools)
    c. Agreed on firm time line
    d. MAC and Phy
    e. Next Steps – weekly conference calls for Mac and separately for Phy
    f. F2F in Japan in early August
    g. F2F in Europe in October
7. Chair discussed planning for September meeting (see doc 11-05-0557r1)
    a. No CCs need to be authorized for CA or Single Stream ad hoc committees
    b. Monday Sept 12 posting date for updated merged proposal
    c. Email question submissions by Thursday Sept. 15
    d. Responses on Monday Sept. 19 at the IEEE meeting
    e. Merged Proposal Presentation & Discussion in Sept.
    f. CA status update in September
    g. Single Spatial Stream Devices (S3D) ad hoc group would like to form a liaison with WFA
    h. Marc de Courville will lead a team to work on the wording of a motion to form a WFA liaison to the WG at the Sept meeting
8. Presentation: Behrouz Farhang; Un. Utah; A Novel Soft MIMO Detector for MIMO-OFDM (802.11n) Receivers (doc. 11-05-0790r1)
    a. Outline
        i. Introduction
        ii. Channel model
        iii. Soft Information: Log-likelihood ratio, LLR values
            1. what is the problem?
        iv. Zero-forcing / MMSE / VBLAST detectors
            1. computation of LLR values
        v. Our solution to LLR computation

vi. Simulation results
vii. Conclusions

b. SIC = successive interference canceller
c. Conclusions:
   i. The problem of soft estimation of information bits in a MIMO setup was addressed.
   ii. Using Markov chain Monte Carlo (MCMC) simulation technique, in the Wireless Communications lab of Un. of Utah, we have developed a very efficient detector for this task.
   iii. The proposed method could be *used along with any conventional detector* (ZF/MMSE/VBLAST-SIC) to improve its performance.
   iv. Gains in the order of *6 dB or more* have been observed.
   v. The proposed method is an excellent choice in systems that employ advanced channel coding, i.e., *turbo and LDPC codes.*
   vi. The proposed technology is *extremely hardware friendly*. The complexity of the MCMC simulator is *not greater than a 16 bit-by-16 bit multiplier*. Therefore, in a MIMO-OFDM where many subcarrier channels have to be examined in parallel, a number of MCMC simulators can be run in parallel at a minimum cost.
d. Questions:
   i. Frame size on FER plots? A – three symbol size
   ii. Channel? A – frequency selective
   iii. Show MSE? A – no
   iv. Initialization? A – ZF; ZF into Markov Chain and then generate LLR value and iterate
   v. Even after only 1 iteration shows much improvement? A – yes
   vi. Intuitive explanation? A – sorry don't have one yet
   vii. Guaranteed to converge? A – to be studied

9. Chair - any other business?
10. Adrian Stephens – updated Functional Requirement has been posted; doc 11-03-0813r13
11. **Motion to adjourn by Larry Arnett was seconded by Adrian Stephens passed unanimously**

IEEE P802.11
Wireless LANs

July 2005 TGp/WAVE Minutes

Date: 20-July-2005

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Abstract

This document includes the meeting minutes for the IEEE 802.11 WAVE Task Group held in San Francisco, CA, from July 18th to 22th, 2005, under the TG Chairmanship of Lee Armstrong of Armstrong Consulting and editor Wayne Fisher of ARINC. Minutes were taken by Filip Weytjens of TransCore and Randy Roebuck of Sirit.

Monday July 18, 2005, Ad-hoc (8:00 AM - 11:00 AM)

- Lee Armstrong, chair opened the meeting.
- Monday sessions are considered adhoc and voting will need to be conducted in scheduled meetings within the official meeting block (Monday 1:30pm through Friday 12:00pm minus tutorials and social).
- Issues exist with attendance system and will continute to report attendance in daily sign-in at registration desk.
- Armstrong urged people to attend opening plenary where they will be covering new anti-trust information.
- Standards patents bylaws and meeting rules / etiquette were covered.
- Randy Roebuck of SIRIT Inc. is taking meeting minutes until Filip Weytjens arrives.
- Carl Kain asked about government release status of P1556. Question was tabled until Wednesday or when appropriate people arrive.
- Wayne Fisher covering received technical comments from and 11-05-0693 Open Issues July 2005 document regarding IEEE802.11p draft revision 0.21.
- No representatives from IETF & ITU to give status.
- Lee Armstrong covered last meeting's action items from Cairns:

  # 18 (Cash) OVHI – Open (Carryover)

  # 19, 20 & 21 (Cash) Measurements explanations asked from Koga – Open (Carryover)

  # 25 Look at all sections containing priority wording (clause 5.9.8, K.3, K.4 and etc) – Justin McNew by June 30

  # 26 Finalize WRSS definition/requirement through WRSS committee – Jeffrey Zhu by June 24

  # 27 Get semiconductor manufacturers' WRSS feedback before July's plenary – Dick Roy by July 18

  # 28 Arrange special "p" session for WRSS at July plenary where "k" and semiconductor company "n" representatives can be present – Lee Armstrong

  # 29 Invite appropiate "k" and "n" representatives to July's special WRSS session – Randy Roebuck by July 8

  # 30 Review "j" duplication that applies to "p" draft – Jason Liu by June 30

  # 31 Review "j" differences and determine if they are justifiable and present recommendation – Jason Liu by July 18

  # 32 Submit new comment on test parameters in clause 20.3.10 are tested at chip or system level? Specific to "p"? – Rick Noens by June 30

  # 33 Provide test channel model recommendations and present – Dick Roy by July 18

  # 34 Provide test clause comments from OmniAir "Device Certification" prespective – Randy Roebuck by June 30

  #35 Provide WRSS earlier seminconductor responses done in September 2004 to Richard Roy – Randy Roebuck by May 20, Completed

Wednesday, July 20, 2005, 8:00 AM Session

The meeting was convened by Lee Armstrong at 8:10AM.

The policies and rules, including patent rules, Meeting etiquette, inappropriate topics including price identification, were presented to the group. The objectives were discussed and the agenda was approved.

The posted meeting minutes of the May TGp meeting in Cairns, Australia (doc nr 591) were approved.

Liaison reports

Knutt Evensen – ISO: No update
Tom Kurahara – IEEE P1609:

- Next meeting scheduled for August 23 (Detroit) together with ISO TC204/WG16
  - Presentation from WG16 and IEEE working groups discussing differences or potential overlap.
- P1609 Standards meeting on August 24, 25, 26 – most likely Michigan DOT (Detroit)
  - Drafts will be circulated before August 24th.
- Next meeting is Scheduled for October 5, 6, 7. NY State DoT offered their facility to host the meeting.

Broady Cash – IEEE 1556:

- VSCC group agreed to delay the vehicle security such that other security areas could move forward.
- The version 1 of 1556 standard follows by a maintenance period after which version 2 will become available.
- Intended for applications running on top of the MAC and the PHY. It is not expected that this standard will have an impact to the MAC and PHY security provisions.

Lee Armstrong – IETF: No update.

Review action items previous meeting

ACTION 18: Broady Cash will update the language in section 3.5.2, 5.9.2, 5.9.3 addressing the relation made to the In-vehicle bus.

Open – The standard will be updated changing IVN (In-Vehicle Network) to OVHI (OBU Vehicle Host Interface).

19, 20 & 21 (Cash) Measurements explanations asked from Koga – Open (Carryover)

Background: It was questioned which information was used to derive the requirement for the adjacent channel rejection, Minimum sensitivity, and Alternate adjacent channel rejection in table 20.3.10.1.1. Same question came up for sections 20.3.10.3 to 9. It was mentioned that measurements were performed and that calculations showed that this requirement could be met. It was decided that the available documentation will be made available and will be discussed off-line. A list will be developed on which tests need to be performed in order to verify the requirements. The list will be presented next meeting.

Open: We have not been able to determine whether the information can be released. As soon as the information is released it will be provided to the group.

25 Look at all sections containing priority wording (clause 5.9.8, K.3, K.4 and etc) – Justin McNew by June 30

Jason Liu: This is ongoing. Deferred to next meeting.

26 Finalize WRSS definition/requirement through WRSS committee – Jeffrey Zhu by June 24

Jeffrey Zhu: Since last meeting we had a couple of conference calls. A presentation was prepared which will be presented to the group in the afternoon.

27 Get semiconductor manufacturers' WRSS feedback before July's plenary – Dick Roy by July 18
Randy Roebuck: We requested information from the manufacturers and sent an invitation out. No response received.

28 Arrange special "p" session for WRSS at July plenary where "k" and semiconductor company representatives can be present – Lee Armstrong

Done

29 Invite appropriate "k" and "n" representatives to July's special WRSS session – Randy Roebuck by July 8

Invited the known representatives from the chip manufacturers. Not sure whether they will be able to make it to the meeting in the afternoon.

30 Review "j" duplication that applies to "p" draft – Jason Liu by June 30
31 Review "j" differences and determine if they are justifiable and present recommendation – Jason Liu by July 18

Wayne Fisher: Jason provided input to Wayne who updated the documents to address the duplications. Done

32 Submit new comment on test parameters in clause 20.3.10? Which one are tested at chip or system level and specific to "p"? – Rick Noens by June 30

Background: Richard Noens plans to submit new comment on test parameters in clause 20.3.10 initiated from Randy Roebuck's question on these parameters being tested at chip or system level? Specific to "p"?

This was discussed during the adhoc meeting. It was suggested that we wait until the language in the standard stabilizes. Not clear – Multipath, Doppler shift, …

33 Provide test channel model recommendations and present – Dick Roy by July 18

Done

34 Provide test clause comments from OmniAir "Device Certification" prespective – Randy Roebuck by June 30

Open

#35 Provide WRSS earlier semiconductor responses done in September 2004 to Richard Roy – Randy Roebuck by May 20, Completed

Done

Action items that were not addressed will be re-addressing in the afternoon.

<u>Ad-hoc meetings</u>

During the ad-hoc meeting the 802.11p draft document was discussed (11-05-0693-00-000pP802.11p). The action items resulting from this ad-hoc session were re-confirmed.

It was requested that Brian Wells would review the resolution of the Denso comments that were discussed during the meeting.

It was also requested that when submitting comments, they must be clear and must include proposed changes.

In clause 5.9.8 the word safety message is used without a definition. It was understood that a definition needs to be included and will be discussed in the afternoon. Also, there is no definition of message stream.

ACTION #36: Generate a definition for Safety Message, Message stream, and service provider.

Comment Denso/2: Closed. This is not supported. See for instance 10.3.24.1
Comment Denso/3: Additional wording has been provided in the latest version of the draft amendment. Clarification on the question by Brian Wells: If the WAVE subfield is not set to true, is there anything that can be done?
Wayne Fisher asked whether it was acceptable that if false, no functions are performed. This was acceptable to Brian Wells.

Additional clarification is required in the standard to describe the use of the WAVE Subfield and to address the use of WAVE in other bands such as UNII and 4.9 GHz.

Broady Cash: The use of WAVE in other jurisdictions needs to be identified in the annex. It is important that the WAVE subfield is used to identify whether the device is in WAVE mode or not.

TNCM30: Open

TNCM31:
Broady Cash: Most of the callouts for tests are for static conditions using 1000 byte packets. It is assumed that if a device works for 1000 byte packets it will work in the same static environment for shorter packets as well. The 64 bytes are used in a simulation for a mobile environment. The RF channel model/simulator is ready in January. At that time additional testing can be done.

Lee Armstrong: The problem may be the way this paragraph reads. Question: Is this information informative or is it required. Broady Cash: It is informative. It tells you the basis for the test requirements that are required. However, it is not clear what needs to be changed. The language needs to be updated but we have to understand the final test procedure that will be described in the test document. No change needs to be made to the first paragraph. In the informative session, we need to include testing of 64 bytes in a mobile environment.

It was requested to accept the set of comments identified as closed. This vote was accepted by the group with 17 favour, 0 against.

This completes the review of the ad-hoc meeting.

The meeting was recessed at 9:55 AM.

Wednesday, July 20, 2005, 1:30 PM Session

Broady Cash: during previous session 2 items came up that were not finished during the session.
- WAVE Mode parameter being set.
- Actual change to the standard to implement the 64-byte test.

Chair: Both issues relate to comments that are already on the spreadsheet. The concerns will be addressed when the comments are discussed. If time permits, this can be addressed during the meeting this afternoon.

Randy Roebuck/Richard Roy presents the WRSS issue (doc nr: 05/0754-01-000p-r0).

Dick Roy gave a technical overview of the statistics related to the measurements.

It was addressed that the question to the OEMs (slide 14) needs to include the additional complexity when they would support it. It was also identified that also the user must sign up for the requirements.

It was presented that the short-term accuracy was +-3dB but no confirmation was received from the manufacturers.

Straw pole

1. Should TGp concern itself with "WRSS"? (9 Yes, 2 No, 6 Abstain)

2. Should WRSS be mandated even if it has a considerable impact on product complexity (1 Yes, 7 No, 6 Abstain)

   Broady Cash: Made the comment that it was not clear what complexity was. The term was addressing potential cost impact.

3. Should TGp address WRSS MAC poll/response effects and accept current accuracy/resolution values for absolute measurements from TGk (1 Yes, 7 No, 8 Abstain)

4. Should TGp address WRSS MAC poll/response effects and accept current accuracy/resolution values for absolute measurements from TGk? (Yes, No, Abstain)

   Justin McNew requested not to vote on question 4. Seconded by Bob Soranno.
   It was agreed not to vote on this question.

5. Should TGp request that TGk incorporate short- and long-term statistical parameters in defining accuracy and setting limits (as described herein)? (Yes, No, Abstain)

   It was not appropriate for TGp to pose questions to TGk. Broady Cash moved not to have a vote. Seconded by Jerry Landt.
   It was agreed not to vote on this question.

Reconfirmation questions

1. Should TGp continue work on including WRSS (both MAC poll/response and accuracy resolution)? (Yes, No, Abstain)
2. Should TGp eliminate WRSS entirely? (Yes, No, Abstain)

The reconfirmation questions were not voted on.

There was a discussion on what long and short term measurements were. It was identified that 1 minute was not short term.

Broady Cash moved to table the discussion on WRSS till tomorrow morning. Rick Noens seconded. Discussion tabled.

The meeting was recessed at 3:30PM.

Wednesday, July 20, 2005, 4:00 PM Session

The chair reconvened the meeting at 4:08PM.

Tamar Elbatt presented "Communications performance evaluation of cooperative collision warning applications", doc nr 05/0764r0.

Conclusions:

1. DSRC supports low latency for CCW applications even under high density scenario's
2. Performance measures chosen to address the needs of CCW applications show that DSRC supports those applications.
3. Under high densitriy scenario's, packet success probability varies considerably with distance.
4. Need to investigate:
   - More realistic channel models
   - Impact of varying the broadcast rate
   - Multi-channel operation

Wayne Fisher proceeded with the discussion on the status/comments of the draft document (doc nr 05/0692).

The latest version of the draft amendment is P802.11p_D0.22.pdf

The comment sheet that was discussed was doc nr 0749-01.

Denso/3: Besides the issues discussed for this comment. It was also not clear on whether only WAVE could be used in the 5.9 Ghz band or whether other services were supported.

FCC Language proposed by Broady Cash: The WAVE mode shall be used in the 5.9 GHz band, no other mode is allowed.

In response to comment Denso/3, following language was added to paragraph K.2: "In the 5.850 – 5.925Ghz only the WAVE mode shall be used."

A vote was taken on the wording that was added to the amendment. The wording was unanimously approved.

TNCM/30:
Clause 20 was updated and the language was moved to 20.1.
Clause 20.3.10.7: 2100 Hz was updated with 765 Hz and language was put in for the 64 byte requirement with a +-1576 Hz Doppler requirement.
Jason confirmed that no changes had to be made to these clauses.
A vote was taken on the wording that was added to the amendment and the changes that were included. The changes were unanimously approved.

It was decided that clause 5.9.8 needed revision. This will be addressed during tomorrow's session.

The meeting was recessed at 6:00PM.

Thursday, July 21, 2005, 8:00 AM Session

The meeting was reconvened by Lee Armstrong at 8:00AM.

Wayne Fisher proceeded with the status of the draft (doc nr 05/0692).

The latest version of the draft amendment is P802.11p_D0.22.pdf

The comment sheet that was discussed was doc nr 0749-01.

Clause 20.3.10.7: The concern was raised that the language in section 20.3.10.7 was inconsistent and not sufficient. The problem that was raised was that the channel model was not available today (available in December).

ACTION #37: Provide input on the Doppler curve to be used in paragraph 20.3.10.7 (M. A. Ingram)

A vote was held to move the closed comments from the list. The vote passed unanimously.

The meeting was recessed at 9:50 AM.

Thursday, July 21, 2005, 10:30 AM Session

Lee Armstrong reconvened the meeting at 10:30 AM.

The language the ad-hoc group came up with was presented to the group.

Dick Roy stated that he did not agree with the language the Ad-hoc group came up with. It was his feeling that the proposed language was not sufficient to provide a description of the use of the accuracy and resolution.

Jeffrey Zhu stated that TGk did not intent to add more detail to the language.

It has been moved by Dick Roy and seconded by Scott Andrews to remove all references to how signal strength measurements are to be made and to remove all references to accuracy requirements thereof. The definition of signal strength as an absolute measure of the received power at the antenna connector over a single burst is to remain. (Vote: 7 Favour, 7 Against, 5 Abstain) – Motion fails (<75%)

Discussion:

Justin discussed why he believed we should discuss the WRSS language with TGp and was in support of the proposed language.

Dick: I am in full support of every MAC layer requirement. There is absolutely a need to describe the issues within TGp. The language should be removed to get through letter ballot. Spoke in favour of removing the language.

Broady: Spoke in favour of keeping the standardization of the WRSS in TGp.

Scott: Has a problem with putting something in the spec that makes it different from 802.11 and at the same time assuming that somebody someday will implement it.

Jeffrey: Believes that TGk cannot sufficiently address the WRSS since we are working in a mobile environment.

Randy also believes that TGk cannot sufficiently address the WRSS.

The language under discussion:

> WRSS (Wave Receive Signal Strength) is a measure of the received RF power in a selected channel made at the antenna connector. WRSS shall be measured during the reception of the PLCP preamble. WRSS is intended to be used in a relative manner, and it shall be a monotonically increasing function of the received power.

> The short term accuracy shall be based upon 100 frames received within 1 second, and shall be better than ± 3 dB. The WRSS parameter has sufficient bit length to provide less than or equal to 0.2 dB resolution. These specifications apply within the received RF power range of -60 to -30 dBm.

Vote: (7 favour- 5 against- 9 abstain)

Motion #1: Move that bit 12 of the capability information field be allocated to "WAVE" as defined in 802.11p. Vote: (11 Favour – 0 Against – 6 Abstain)

Motion #2: Withdrawn

ACTION #38: Identify what we need to request for the element ID and what is required to update the document? (Jason Liu)
Jason will ask Bob O'hara for the element ID number

In two weeks Wayne will post the new draft to the server including all the comment resolutions. At this time, new comments can be submitted. Comments need to be back to Wayne two weeks before the next meeting. All comments identified on sheet is from an individual not from a company.

The meeting was adjourned at 12:35 PM.

ACTION ITEMS

ACTION 18: Broady Cash will update the language in section 3.52, 5.9.2, 5.9.3 addressing the relation made to the In-vehicle bus.

Open – The standard will be updated changing IVN (In-Vehicle Network) to OVHI (OBU Vehicle Host Interface).

19, 20 & 21 (Cash) Measurements explanations asked from Koga – Open (Carryover)

Background: It was questioned which information was used to derive the requirement for the adjacent channel rejection, Minimum sensitivity, and Alternate adjacent channel rejection in table 20.3.10.1.1. Same question came up for sections 20.3.10.3 to 9. It was mentioned that measurements were performed and that calculations showed that this requirement could be met. It was decided that the available documentation will be made available and will be discussed off-line. A list will be developed on which tests need to be performed in order to verify the requirements. The list will be presented next meeting.

Open: We have not been able to determine whether the information can be released. As soon as the information is releasable it will be provided to the group.

25 Look at all sections containing priority wording (clause 5.9.8, K.3, K.4 and etc) – Justin McNew

Jason Liu: This is still ongoing. Deferred to next meeting.

32 Richard Noens plan to submit new comment on test parameters in clause 20.3.10 initiated from Randy Roebuck's question on these parameters being tested at chip or system level? Specific to "p"?

(This was discussed during the adhoc meeting. It was suggested that we wait until the language in the standard stabilizes.)

34 Provide test clause comments from OmniAir "Device Certification" prespective – Randy Roebuck by June 30

Open

ACTION #36: Generate a definition for Safety Message, Message stream, and service provider.

ACTION #37: Provide input on the Doppler curve to be used in paragraph 20.3.10.7 (M. A. Ingram)

ACTION #38: Ask Bob O'hara for the element ID number and look into what is required to update the document. (Jason Liu)

ACTION #39: Provide definition for service provider (comment: Motorola/38). – Rick Noens

IEEE P802.11
Wireless LANs

TGr Meeting Minutes July 2005 Session

Date: 2005-07-21

Author(s):

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Tuesday July 19, 2005

8:00am

- Call to order
- Agenda – Document 11-05/714r0
- Review operating rules for a Task Group.
- Review IEEE 802 policies and procedures for Intellectual Property.
- Approve minutes from the May session – Document 11-05/401r0
  - Minutes approved unanimously.
- Approve minutes from the Teleconference sessions – Document 11-05/523r3
  - Minutes approved unanimously.
- Discussion on Agenda – Document 11-05/714r0
  - Changes will be recorded in Document 11-05/714r1
  - Agenda is approved unanimously.
- Discussion of Document 11-05/538r4 by Bill Marshall
  - The TGr editor needs the source to all Visio figures for all submissions to the TGr amendment.

MOTION: To accept the changes proposed in this contribution (document 11-05/538r4), and instruct the editor to generate a new draft with these changes incorporated.
By: Bill Marshall
Second: Kapil Sood
Discussion:

- It is the job of the WG editor to change section numbers to accommodate other amendments such as TGp. Not the Task Group editor

Result: 29 – Yes; 0 – No; 5 – Abstain. Motion Passes

- The editor has created TGr Draft 0.03 with the changes described in Document 11-05/538r4.
- Discussion on Document 11-05/539r5 by Bill Marshall
  - This document describes technical changes to the draft that were discussed on the TGr teleconference calls since the Interim Plenary in May.
  - In slide 47, it would be better to express key lifetime in seconds.
  - There were two IE's, one for key lifetime and one for reservation timeout. They were combined into one timer.
  - Should we have two timer elements, or one timer element?
  - TGk has a format to express a timer in seconds or in milliseconds.
  - IEEE 802.11i uses a 32 bit value in seconds to express key lifetime.
  - We could fix the resolution by the type: seconds for key lifetime; and milliseconds for reservation lifetime.
  - Another contribution should be a bit in the type field to indicate the resolution.
  - Slide 45 changes the reassociation except where it specifically refers to the management frame.

MOTION: To instruct the editor to include the resolutions given in Document 11-05/539r5, with the exception of slide 46, in the next draft of the TGr amendment.
By: Bill Marshall
Second: Keith Amann

Discussion:

- None.

Result: 30 – Yes; 0 – No; 1 – Abstain. Motion Passes.

- Presentation of Document 11-05/619r0
  - Discrepancy whether "over the DS" was not part of the base mechanism.
  - The base mechanism could be initiated either "over the Air" or through action frames "over the DS".
  - The advertisement is already in place.
  - Reservation is orthogonal to this mechanism. We are saying the Nonce relaying could be done over the DS.

MOTION: To instruct the editor to include the resolution given in Document 11-05/619r0 in the next draft of the TGr amendment.
By: Bill Marshall
Second: Michael Montemurro
Discussion:

- None.

Result: 21 – Yes; 1 – No; 8 – Abstain. Motion Passes

- Discussion on Document 11-05/621r0 by Bill Marshall.
  - Doesn't take out the meaning of T as target, not transition.
  - There still will be instances of TTAP in the document.
  - As a definition a TTAP is a target TAP.
  - TBTT is used as an acronym in 802.11i
  - TT used to be "transition target", is the "transition" modifier important to someone.

MOTION: To instruct the editor to include the resolution given in Document 11-05/621r0 in the next draft of the TGr amendment, while changing any remaining uses of the term TTAP to target TAP and drop the definition of TTAP from the acronym section.
By: Bill Marshall
Second: Nancy Cam-Winget
Discussion:

- None.

Result: 22 – Yes; 1 – No; 11 – Abstain. Motion Passes

- Adjourn until the 10:30am session.

Tuesday July 19, 2005

10:30am

- Call to order
- Discussion on Document 11-05/633r0 by Bill Marshall
  - The TRIE and TSIE should be highlighted for the data in the EAPoL-Key IE's.

MOTION: To instruct the editor to include the resolution given in Document 11-05/633r0 in the next draft of the TGr amendment.
By: Bill Marshall
Second: Michael Montemurro
Discussion:
- None.

Result: 26 – Yes; 0 – No; 6 – Abstain. Motion Passes

- Discussion on Document 11-05/647r0 by Bill Marshall
  - The addition of the term "debugging" in the disclaimer should not be used.
  - This description goes a bit too far to describe how the protocol in implemented.
  - The IEEE 802.11i amendment already discusses securely destroying key material.
  - The fact that we have a key name allows use to use it in logs and traces.
  - The names are calculated – how do you verify your calculation.
  - We need text to describe why we are including key names – which allows us to describe the key hierarchy.
  - This text does not describe how MAC entities communicate, and is therefore out-of-scope of the standard.
  - This text cannot be normative because it does not describe how devices can remain optimal.
  - The text should be informative.
  - It's a laudible goal, but it should not be part of the standard.
  - It is valuable to describe the key names to an implementor.
  - The document will be updated and be discussed later in the session.

- Discussion on Document 11-05/650r0 by Kapil Sood.
  - Why is the session identifier necessary?
  - The Nonces in the re-association request and response are not really necessary.
  - The Nonces need to be changed so that the figures are consistent with the text.

MOTION: To instruct the editor to include the resolution given in Document 11-05/650r0 in the next draft of the TGr amendment.
By: Kapil Sood
Second: Bill Marshall
Discussion:
- None.

Result: 27 – Yes; 0 – No; 9 – Abstain. Motion Passes

- Discussion on Document 11-05/705r1 by Kapil Sood.
  - You have to make sure that the KCK usage in the TGr amendment is different from the IEEE 802.11i amendment.

- Different information is mic'd in TGr when compared with IEEE 802.11i, so the definition should be different.
- The difference between Document 11-05/705r0 and Document 11-05/705r1 is the "suggested text".
- We need to modify this document and bring it back for a motion in a future session.

- Discussion on Document 11-05/551r2 by Kapil Sood.
  - This bit is unnecessary when other IE's in the frame refer to capabilities for Fast Transition.
  - If the Fast Transition IE's are not present, then Fast Transition is not enabled.
  - We need to set a bit in a beacon so that a STA needs to know that it needs send a Probe Request frame to query the AP for the Fast Transition IE's.
  - An extended capability bit was discussed in TGe, but it was removed.
  - Both TGk and TGp have claimed to use the last bit of the capabilities advertisement. The only thing you could use that last bit for would be "extended capabilities".
  - All the groups that use an extended capabilities advertisement should insert a description in their draft.
  - TGr will co-ordinate with TGp to ensure that the description is consistent. The amendment that goes through the standardisation will define the extended capabilities.
  - ANA cannot own the definition of extended capabilities.
  - We need a motion to the full working group to request the assignment of a capabilities bit.
  - We do not need to request the assignment of the bit now.

MOTION: To instruct the editor to include the resolution given in Document 11-05/551r3, as a new section 7.3.2.39, and including a new element ID in Table 22 in section 7.3.2, in the next draft of the TGr amendment.
By: Kapil Sood
Second: Srini Kandala
Discussion:

- There really is not a need for this capabilities advertisement. This advertisement is redundant.
- Right not the TRIE and TSIE are quite large. This capabilities advertisement will provide a mechanism for advertising Fast Transition without including the TRIE and TSIE in the beacon.
- In a Fast Transition scenario without security or QoS, the capabilities advertisement can indicate that the AP supports fast transition.
- The size of the beacon is not an issue when these elements are small compared with the SSID or the Country code.
- IEEE 802.11i used the RSN IE for advertisement. IEEE 802.11e and IEEE 802.11g had place holders for a long time.

Result: 5 – Yes; 14 – No; 15 – Abstain. Motion Fails.

MOTION: To instruct the editor to include in Table 5 of section 7.2.3.1, Beacon Frame Format, entries for TRIE and TSIE at the next available order numbers.
By: Kapil Sood
Second: Bill Marshall.
Discussion:

- The IE sizes were 64 bytes and 17 bytes respectively.

- It is necessary to include both of them.

Result: 11 – Yes; 5 – No; 13 – Abstain. Motion Fails.

- Based on these votes, there is some desire for this problem to be solved in some manner. Perhaps an alternative solution could be used to address this issue.
- Discussion of Document 11-05/705r0 by Kapil Sood
  - The FTMD-Id is used in the beacons. It is part of the TRIE and the TSIE.
  - The FTMD-Id does not replace the key naming.
  - The FTMD-Id should be pulled out of the TRIE and the TSIE, and placed in a separate IE.
  - The Security Mobility domain and the Resource Mobility domain are well formed concepts. Someone should go away and prepare a detailed submission on this definition.
  - This work needs to be done offline to consolidate the definition. We need to coalese these concepts to make them deployable.
- Discussion of Document 11-05/620r0 by Bill Marshall
  - This functionality addresses a remote case for Fast Transition. We should be simplifying the document, not adding new features.
  - You could simply “zero-out” the security information without changing the messages.
  - The real question is whether this problem is worth solving.
  - This increases the complexity of the solution.
  - The intention of the selected TGr proposal was to preserve the messaging in all cases.
  - We should not change anything that does not address security considerations.
- Adjourn until the 1:30pm session.

Tuesday July 19, 2005

1:30pm

- Call to order.
- Discussion of Document 11-05/622r0 by Bill Marshall
  - This text defines a sequence of information elements that appears in a sequence of four messages. The sequence of IE's are included as part of the Authentication message description.

MOTION: To instruct the editor to include the resolution given in Document 11-05/622r0, with the change of moving the entry for the RSN IE between the entries for TSIE and RIC in the table, in the next draft of the TGr amendment.
By: Bill Marshall
Second: Nancy Cam-Winget
Discussion:
- None.

Result: 17 – Yes; 0 – No; 11 – Abstain. Motion Passes

- The use of CAP by TGr conflicts with work currently being done in TGe.
- TGk is currently using serving AP as a description of the AP. We might want to align ourselves with TGk.
- IEEE 802.11i uses the term "current AP".

MOTION: Change the use of the term "CAP" to "current AP".
By: Bill Marshall
Second: Frank Ciotti
Discussion:
- None.

Result: 26 – Yes; 1 – No; 1 – Abstain. Motion Passes.

- Discussion of Document 11-05/714r2 by Nancy Cam-Winget
  - The AES-CMAC-128 algorithm is in the order of 10 times faster than HMAC-SHA-1.
  - Work could be done in TGm to update IEEE 802.11i content.
  - This work could be done to TGw.

STRAW-POLL: Is there enough interest to pursue the ideas in Document 11-05/722r0?
Result: 33 – Yes; 0 – No; 6 – Abstain;

MOTION: Replace the use of HMAC-SHA1 with with HMAC-SHA256 in the KDF derivation described in section 8.5A.3, and modifying the appropriate text from 159 to 255 and 160 to 256.
By: Nancy Cam-Winget
Second: Jesse Walker
Discussion:
- The cost of HMAC-SHA256 is more processor instructions HMAC-SHA1, and hence poorer performance. However, this derivation would only be done at first connect.

Result: 28 – Yes; 0 – No; 6 – abstain. Motion passes.

- Discussion of Document 11-05/726r1 by Dan Harkins

- This proposal does not replace the R0 Key Holder with the NAS ID. Although that would be a commendable change.
- The AAA Client and the R0 Key Holder need to be co-resident in order to do key scoping.
- Calling the AAA Client the Authenticator the same thing is not correct. They do different functions.
- Any PMK holder is an Authenticator. The Authenticator is overloaded.
- You have to be able to operate in EAP without an AAA Server. The AAA Client is not an EAP entity.
- The NAS-ID would be the equivalent to the R0 key holder.
- None of the changes in 11-05/724r0 eliminate any of the key holders.

MOTION: Instruct the editor to incorporate changes from Document 11-05/724r0 into the next TGr draft.
By: Dan Harkins
Second: Kapil Sood
Discussion:

- In section 8A.2, the PMK-SA includes a list of all key holder IDs. The key holders should be deleted.

Result: 23 – Yes; 0 – No; 10 – Abstain. Motion passes.

MOTION: Instruct the technical editor to produce a new draft incorporating the changes that have been accepted by the Task Group
By: Jesse Walker
Second: Fred Haisch
Discussion:

- None

Result: Motion passes unanimously.

- Recess until the Thursday 8am session.

Thursday July 21, 2005

8:00am

- Call to order.
- Discussion on document 11-05/757r0 by Chris Trekker
  - The variation in roaming times depends on the type of device. A phone is a simpler system and hence has a more consistent roaming time.
  - TGT is looking to define test methodology and get feedback from TGr.
  - Based on these results, TGr is not going to make much progress without TGk scanning optimizations.
  - Pre-reservation or pre-authentication could be used to measure performance.
- Discussion on document 11-05/647r3 by Bill Marshall
  - No Discussion.

MOTION: To instruct the editor to include the resolution given in Document 11-05/647r3 in the next draft of the TGr amendment.
By: Bill Marshall
Second: Jesse Walker
Discussion:

- This change adds clarity to the draft and should be included.

Result: 31 – Yes; 0 – No; 3 – Abstain. Motion Passes.

- Discussion on document 11-05/705r2 by Kapil Sood
  - This change is consistent with IEEE 802.11i and should be included in TGr.

MOTION: To instruct the editor to include the resolution given in Document 11-05/705r2 in the next draft of the TGr amendment.
By: Kapil Sood
Second: Bill Marshall
Discussion:

- This motion was in PEKM and was voted down. It should be included in TGr.

Result: 28 – Yes; 0 – No; 7 – Abstain. Motion Passes.

- Discussion on document 11-05/673r0 by Michael Montemurro
  - Associated document is 11-05/0672r1
  - Comment on SAP, as usage of SAP can be a lightning rod during ballots.
  - Comment to include source address in the frame for over-the-DS encapsulation. Update Figure 2 in Document 11-05/672r1.

To instruct the editor to include the given text in Document 11-05-0672r2, modified to include the station source MAC address after the detination field in Figure 4, in the next draft of the TGr amendment.
By: Michael Montemurro
Second: Guenter Kleindl
Discussion:

- Editor will replace CAP with Current AP.

Result: Yes – 32; No – 0; Abstain – 3. Motion passes.

- Discussion on document 11-05/554r0 by Paul Funk
  - The AP could simply reject the reassociation request with a status code of "Not Ready". You don't need a special not ready response.
  - "Not Ready" is the same as "come back later"
  - This function could be implemented simply by rejecting requests with the appropriate status code.
  - Eliminating the "Not Ready" altogether will result in packet loss.
  - In order to do this, the AP needs to know the speed of the backend infrastructure.
  - There is a "reassociation deadline" timer that tells the STA when to comeback. Adding another timer adds more state and complexity. We should minimize the number of timers.
  - These messages allow the AP to reject the request without resetting the connection state.
  - There is a significant security hole with the "aggressive mode" where the STA doesn't know whether the message came from the AP.
  - In the case of resources, the AP could advertise a fixed parameter for how long it would take to reserve resources. The AP would know whether it could respond immediately or not.
  - This would not be required in an "over the DS".
  - We provide "over the DS" and "over the air" mechanisms in the protocol. If the infrastructure is slow, an "over the DS" mechanism would be a more appropriate way to address a slow infrastructure.
  - The AP could advertise the infrastructure latency.
  - If "over the DS" is the way to go, perhaps we could optimize or get rid of "over the Air" mechanisms.
  - The "over the air" mechanism was proposed because there were doubts about "over the DS" mechanism for reachability.
  - Based on our discussion, the general feeling that we shouldn't vote on this submission at this time.
- We could prepare a draft after this meeting and submit the draft for review by the working group for comments. If we addressed the comments from the review, we would be ready for letter ballot.
- Recess until the 10:30am session.

Thursday July 21, 2005

10:30am

- Call to order.
- Presentation of Document 11-05/728r0 by Dan Harkins
  - A scheme for putting the keys in place requires a mechanism for revoking and expiring keys.
  - Key expiry is an authorisation attribute. There needs to be a submission on key revocation.
  - If you receive the PMK-R1 in from an unauthorized key holder. You should reject the key materials.
  - Other authorisation attributes could include “time-of-day” restrictions as well as other attributes.
  - The objectives mentioned in this presentation need to go into the 802.11r specification.
  - There should be STA involvement in moving keys around the infrastructure.
  - The STA needs to take part in the authorisation in distributing the key.
  - In this proposed message exchange accomplishes the goal of EAP channel binding.
  - You want to incorporate the information is known and understood by the client.
  - People should read RFC 3579 and RFC 3748 to understand the concepts discussed in this submission.
  - You don’t want to hand out the PMK-R1 to an entity unless you can verify that the identity is authorised to hold that key.
  - The key derivation itself does what’s necessary without involvement from the STA.
  - If the STA is not involved, it does not know whether the key is compromised.
  - The STA should authorise its key usage through an explicit channel.
  - It provides one standardised mechanism to affect the key distribution.
  - We as a group want to develop a mechanism such as this.
  - The two new action frames to do the authorisation occur prior to transition. This could be overloaded in the Authentication request/response.
  - These action frames are somewhat similar to pre-authentication.
  - The idea of “Not Ready” could be used to addressed
  - The PMK-R0 is bound to the SSID.
  - The PMK-R0 holder can’t get the NAI in the draft text.
  - A security requirement is that the keys are bound to the two parties and the two parties can verify that the keys are valid.
  - Sending these messages in an Action Frame is a good idea. It would be nice to be able to do this exchange “over the DS” to the TTAP NAS. If there is a mechanism for addressing the TTAP NAS.
  - The allowance for exchange during the authentication process should be there.

- Discussion of document 11-05/0553r0 by Kapil Sood
  - The PMK-R2-Name in slide 8 should be PMK-R1-Name.
  - The NASID is defined in an RFC 2865 and is a 253 octect string. That identifier should be restricte in this protocol definition.
  - There are no additional requirements to the IETF with the use of the NASID
  - There are conceivable architectures that would require three levels of keys.

- Three levels are likely too much for most WLAN infrastructure architectures. Perhaps a variable level hierarchy would address these requirements.
- If we are using EAP, it places specific requirements on who stores the resulting key from an EAP authentication. There is no separate entity called an AAA client.
- A multi-party key hierarchy becomes very difficult to analyse from a security point of view.
- Having 5 layers of keys, there are 11 different ways of combining key holders. Even with 4 layers, there are 8 ways of combining key holders. After Tuesday's submission, there are only two ways of combining key holders.
- We should look at how this key hierarchy applies to mesh architectures.
- There are other security issues that come out of the mesh topology. There are going to be tradeoffs between routing and security which will govern security in a mesh.
- There is no security reason for the R2 level. There is no purpose for it from a security point of view.
- There needs to be some level of caching, the key levels come from a caching requirement.
- From a mesh point of view, DS traffic needs to be addressed. The DS is not a trusted medium.
- The R1 level is important because it provides key separation. The R0 key represents the authorisation of the AAA Server.
- The R1 level is introduced because we want to move keys around. If you want more stages, you need to add additional key levels.
- This submission would override the changes adopted by Document 11-05/647r0. We need the truncated key names.

MOTION: To instruct the editor to include the resolution given in Document 11-05/746r0, recinding the contribution of 11-05/647r2 except for the truncate-128 from document 11-05/647r2, in the next draft of the TGr amendment.
By: Kapil Sood
Second: Michael Montemurro
Discussion:

- None.

Result: 29 – Yes; 5 – No; 6 – Abstain. Motion Passes.

MOTION: Instruct the technical editor to produce a new draft incorporating the changes that have been accepted by the Task Group
By: Nancy Cam-Winget
Second: Bill Marshall
Discussion:

- None

Result: Motion passes unanimously.

- We need to have a Task Group internal review of the current draft.
- We've got the draft to a stage where we are comfortable with it. We need to have a good consensus on what's missing and what needs to change.
- A review is a good idea, but we need to decide what we are going to do with the results.
- We would treat comments for comment resolution.
- Comment resolution is a very lengthy process.

MOTION: Start a 30 day internal review of the latest draft, starting from when the latest draft is available from the Technical Editor. Comments from this internal review will be addressed by the group.
By: Jesse Walker
Second: Bill Marshall
Discussion:

- The review is necessary, but we could get bogged down in comment resolution. It would be better if people just read the draft and just went to Garden Grove prepared to modify the draft.
- We need to decide what means by internal review. It sounds more like a letter ballot.
- A spreadsheet of comments is a more effective way to address comments.
- It's very important that we all go off and read it.
- It would be nice if we had some sort of expedited process where we could make proposals.
- We voted for an internal review. All this is going to do is impede our process.
- We may want to visit this after the September meeting, but not do it now.
- We will have conflicting resolutions without organising review comments.
- The timing may be an issue because the comments won't be available until September.

Result: 2 – Yes; 16 – No; 13 – Abstain. Motion fails.

- We should have teleconferences every two weeks following this meeting and extending until the next plenary meeting.

MOTION: Hold bi-weekly IEEE 802.11 TGr teleconferences for one hour duration starting August 17th 2005 at 11:00 ET and continuing through the end of 2005.
By: Kapil Sood
Second: Keith Amann.
Discussion:

- None.

Result: Motion passes unanimously.

- Adjourn for the week.

IEEE P802.11
Wireless LANs

July 2005 Mesh Minutes

Date: 01-August-2005

Author(s):

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Abstract

Minutes of the meeting of the IEEE 802.11 ESS Mesh Networking Task Group held in San Francisco, CA, from July 18th to 21st, 2005, under the TG Chairmanship of Donald Eastlake III of Motorola Laboratories. Minutes were taken by Stephen Rayment and edited by Donald Eastlake III. The final agenda for the meeting is in document number 11/05-566r8. The Closing Report is in document 11/05-800r0.

Contents

Minutes

Session I, Monday, July 17th, 16:00-18:00, Hyatt Regency Hotel – Pacific LM Room

The meeting was called to order at 16:01 by Donald Eastlake III - Chair, Stephen Rayment - Secretary, W. Steven Conner - Editor

The Chair outlined the week's Agenda, page 3 of document 11-05/566r4

The IEEE and 802.11 Policies Concerning Patents and Inappropriate Topics were explained by the Chair and there were no questions.

The Chair explained and reminded everyone to use the manual Attendance system.

Approved the Minutes of the May 2005 Meeting, 11-05/535r1 by unanimous consent

Approved the Minutes of Teleconferences held 16 June 2005, 11-05/613r0, and 13 July 2005, 11-05/649r1 by unanimous consent

The Chair reviewed the remainder of the Agenda in detail.

Adopted Agenda, 11-05/566r4 by unanimous consent

Juan Carlos Zuniga presented the latest TGs Selection Procedure document 11-05/274r10. Comments were solicited.

Motion to adopt 11-05/274r10 as the latest Process document.
Moved: Juan Carlos Zuniga Second: Alex Cheng
Passes: For 49 Against 0 Abstain 2

The Chair recessed the session at 17:38

Session II, Tuesday, July 18th, 10:30-12:30, Hyatt Regency Hotel – Pacific LM Room

The Chair convened the session at 10: 30

The Chair reviewed yesterday's accomplishments, reviewed the IPR Policies, reminded everyone to use the manual Attendance system and reviewed the Agenda and structure for this and the remaining sessions. Samples of the Ballot forms were handed out to participants.

10:34 Partial Proposal C:6, Cooperative Protocol
11-05/602r4 "Universal Cooperative Protocol With Mesh Aware Engine" D.J.Shyy MITRE Corp.

11:32 Full Proposal I:20 TBR
11-05/641r1 Tree Based Routing Protocol, Jan Kruys, Shah Rahman, Cisco

The Chair recessed the session at 12:30

Session III, Tuesday, July 18th, 13:30-15:30, Hyatt Regency Hotel – Pacific LM Room

Chair convened the session at 13:30 and reminded everyone to use the manual Attendance system

13:34 Partial Proposal H:9, Mesh Networks Alliance
11-05/600r1 "Mesh Networks Alliance IEEE 802.11 TGs Proposal submission" Guido Hiertz et al ComNets

14:03 Partial Proposal D:17, Intermittent Periodic Transmit Forwarding
11-05/680r0 "IPT Forwarding Overview" Hiroshi Furukawa et al Kiyushu University

14:32 Full Proposal N:18, SNOWMesh
11-05/731r0 "Overview of Secure NOmadic Wireless Mesh (SNOWMesh)" Jonathan Agre et al Fujitsu

Session recessed at 15:25

Session IV, Tuesday, July 18th, 16:00-18:00, Hyatt Regency Hotel – Pacific LM Room

The Chair reconvened the session at 16:00, reminded everyone to use the manual Attendance system, and reminded everyone of IEEE policies regarding the use of recordings and photographs.

16:04 Full Proposal L:19, Siemens
11-05/593r1 "Siemens Partial Proposal for WLAN Mesh Networking" Michael Bahr et al Siemens AG

17:02 Full Proposal J:35, Proactive Mesh
11-05/386r3 Bing Zhang et al, presented by Youiti Kado Oki Electric

The latest version of the document is still to be uploaded by the author, changes are minor.

Chair adjourned the session at 17:48

Session V, Wednesday, July 19th, 08:00-10:00, Hyatt Regency Hotel – Grand Ballroom C

The Chair convened the session at 08:01, reviewed the status to date, the agenda for the rest of the week and reminded people to use the manual Attendance system

08:04 Partial Proposal E:5, Hybrid Mesh Routing
11-05/696r1 "A Hybrid Mesh Routing Protocol" Hang Liu et al Thomson Inc.

This proposal is merged with the Wi-Mesh Alliance Proposal (B:31)

08:33 Partial Proposal O:29, Self Organizing
11-05/611r2 "Self-organizing and Auto-configuring Mesh Networks" Alexander Cheng C-cation Inc.

09:02 Full Proposal A:8, Mesh DCF
11-05/594r2 "A MAC Partial Proposal for IEEE 802.11s" Rui Zhao ComNets

Chair recessed the session at 09:47

Session VI, Wednesday, July 19th, 13:30-15:30, Hyatt Regency Hotel – Grand Ballroom C

The Chair convened the session at 13;31, reviewed the Agenda to date and for the rest of the week, and reminded everyone to use the manual Attendance system.

13:34 Proposal F:3, Dynamic Backbone
11-05/142r1 "Proposal for a Dynamic Backbone Mesh" Dennis Baker et al NRL

14:03 Partial Proposal M:22, Common Control Channel
11-05/707r0 "Short presentation on the CCC protocol for mesh MAC" Mathilde Benveniste Avaya

14:32 Full Proposal B:31, Wi-Mesh Alliance
11-05/573r3 "Wi-Mesh Alliance Proposal for 802.11 TGs" Juan-Carlos Zuniga, Susan Hares et al

Session VII, Wednesday, July 19th, 16:00-18:00, Hyatt Regency – Grand Ballroom C

The Chair resumed the session at 16:01, described the ballot process, and outlined the Agenda for this session.

16:04 Proposal G:7, SEE-Mesh
11-05/567r2 "Simple Efficient Extensible Mesh (SEE-Mesh) Proposal Overview" W. Steven Conner et al

Chair discussed the "TGs Process" document 11-05/662r1, reminding us we were behind the typical schedule for other TG. Current schedule calls for Draft by March 2006, Letter Ballot by July 2006.

The Chair explained voting process and answered all questions asked for clarification on the process.

The Chair proposed a schedule for an ad-hoc meeting. Suggested that 802.11 TGs hold an ad hoc meeting August 30th through September 1st in Portland, Oregon, to discuss proposals, as previously approved by the 802.11 Working Group. Discussion ensued. 14 people indicated they would attend if such an ad hoc was held. It was suggested that 14-16 September, right before the next 802.11 meeting, somewhere on the west coast of the USA would be more convenient. 11 people indicated they would attend. The chair called for a motion to hold an ad hoc before the next 802.11 meeting. No one being willing to make such a motion, no ad hoc will be held.

Moved**,** that TGs hold a teleconference at 11:00 Eastern Time on Wednesday, 14 September 2005 to discuss the agenda for the September meeting. Notice will be given on the mailing list at least 10 days in advance.
Moved Guido Hiertz
Seconded Tricci So
Adopted by unanimous consent

Presentation 11-05/0172r4 "A security model for wireless meshs" Robert Moskowitz

The Chair recessed the session at 17:71

Session VII, Thursday, July 20th, 13:30-15:30, Hyatt Regency Hotel – Grand Ballroom C

The chair convened the session at 13:31, outlined the Agenda for the day and reminded everyone to use the manual Attendance system.

Each of the presenters summarized their proposals per 11-05/274r10
13:35, C:6 Cooperative Protocol
Indicated they were merging with B:31.
13:40, K:32 Samsung
13:45, I:20 Tree Based Routing (TBR) 11-05/791r0
13:50, H:9 Mesh Networks Alliance (MNA) 11-05/788r0
13:55, D:17 Intermittent Periodic Transmit (IPT) 11-05/770r0
13:59, N:18 SNOW Mesh 11-05/784r0
Indicated they were meging with G:7.
14:04, L:19 Siemens 11-05/785r0
14:09, J:35 Proactive Mesh 11-05/778r0
14:14, E:5 Hybrid Mesh Routing
Indicated they were merging with B:31.
14:17, O:29 Self Organizing
14:10, A:8 Mesh DCF 11-05/789r0
14:25, F:3 Dynamic Backbone
14:29, M:22 Common Control Channel
14:35, B:31 Wi-Mesh Alliance (WiMA)
14:414, G:7 SEE Mesh 11-05/787r0

The logistics for voting were described, with the official ballots being given out at the head table by the Secretary and Chair and the completed official ballots being collected at a side table by the 802.11 Chair Stu Kerry and Vice Chair Al Petrick. Balloting occurred using the July 2005 TGs Ballot forms with voters being called up by the first letter of their last name from N through Z and then A through M.

See Appendix below for the results of the balloting.

The Chair adjourned the session *sine dei* after all votes had been cast at 15:15.

Detailed Record

Session I, Monday, July 17th, 16:00-18:00, Hyatt Regency Hotel – Pacific LM Room

The meeting was called to order at 16:01 by Donald Eastlake III - Chair, Stephen Rayment - Secretary, W. Steven Conner - Editor

The Chair outlined the week's Agenda, page 3 of document 11-05/566r4

The IEEE and 802.11 Policies Concerning Patents and Inappropriate Topics were explained by the Chair and there were no questions.

The Chair explained and reminded everyone to use the manual Attendance system.

Approved the Minutes of the May 2005 Meeting, 11-05/535r1 by unanimous consent

Approved the Minutes of Teleconferences held 16 June 2005, 11-05/613r0, and 13 July 2005, 11-05/649r1 by unanimous consent

The Chair reviewed the remainder of the Agenda in detail.

Adopted Agenda, 11-05/566r4 by unanimous consent

The Chair reviewed the status of the TG, slide 8 of the Agenda presentation, and a brief review of document 11-05/0597r5, which lists all the Proposal Submissions for the meeting and their order of presentation.

The Chair then reviewed the TGs Process document 11-05/662r0, which includes the schedule projected at the Cairns (May) meeting, resulting in a first draft March 2006. The document also includes a sample of the July TGs Ballot.

The Chair indicated the latest versions he knew of for all presentations are as listed in the Agenda. Presenters should inform him of any updates ASAP.

It was commented that the proposed teleconference should not be September 24th, it should be before the next meeting, September 14th was suggested.

Juan Carlos Zuniga presented the latest TGs Selection Procedure document 11-05/274r10. The only update to this document, approved at the Cairns meeting, and as discussed at the last teleconference, was Section 5, the process from a single proposal to draft. Comments were solicited.

Motion to adopt 11-05/274r10 as the latest Process document.
Moved: Juan Carlos Zuniga Second: Alex Cheng
Passes: For 49 Against 0 Abstain 2

The Chair recessed the session at 17:38

Session II, Tuesday, July 18th, 10:30-12:30, Hyatt Regency Hotel – Pacific LM Room

The Chair convened the session at 10: 30

The Chair reviewed yesterday's accomplishments, reviewed the IPR Policies, reminded everyone to use the manual Attendance system and reviewed the Agenda and structure for this and the remaining sessions. Samples of the Ballot forms were handed out to participants.

10:34 Partial Proposal C:6, Cooperative Protocol
11-05/602r4 "Universal Cooperative Protocol With Mesh Aware Engine" D.J.Shyy MITRE Corp.

Questions
- Resembles other common control channel proposals, uses time slot as a control channel, how are radios tuned? What's advantage over RTS/CTS? Advantage – can use just one radio, Disadvantage – radios must agree on where time slot is RTS only provides durations, why not expand RTS?
- Slide 46, what if there are many co-located meshes, do you need dedicated Control channel? Yes, not common in military applications

11:03 Partial Proposal K:32, Samsung
11-05/0608r1 "802.11 TGs MAC Enhancement Proposal" Rakesh Taori et al Samsung

Questions
- Difference with previous protocol? Not clear yet
- Packet size in simulations? 1500 bytes
- If you had multi radios would this extend to control signal on dedicated channel? Think so
- Is this a special case of common control protocol?
- Self CTS is nice for silencing, but it silences all.
- Slide 4, does second RTS come in after DIFS? Could be contention? Yes, minimum time is DIFS

11:32 Full Proposal I:20 TBR
11-05/641r1 Tree Based Routing Protocol, Jan Kruys, Shah Rahman, Cisco

Questions
- Slide 13, some nodes cannot communicate with each other, what about Shortest Path Bridging? Start with tree today, add others later
- QoS through multiple trees, wireless is dynamic, must monitor status and use eg. OLSR, changing trees introduces overhead, may only locally optimize
- 250msec is too long for VoIP. It's only used for discovery though
- Multicast, filtering has proven problematic with other protocols, how can you do it here? Only do filtering at time of broadcast
- Slide 21, how does inter-tree communication work, when Root A talks to Root B how does he know to pick it up? How do you do inter-tree, inter-VLAN, communication? Assumes a separate external router
- Elaborate on Link Metric mechanism, how do you combine them all into one figure? Implementation detail!
- Repeated concern with optimality for client to client communications. Good way to start, append this later.
- Nodes common to both trees don't forward, would you ever? Work on that is incomplete.

The Chair recessed the session at 12:30

Session III, Tuesday, July 18th, 13:30-15:30, Hyatt Regency Hotel – Pacific LM Room

Chair convened the session at 13:30 and reminded everyone to use the manual Attendance system

13:34 Partial Proposal H:9, Mesh Networks Alliance
11-05/600r1 "Mesh Networks Alliance IEEE 802.11 TGs Proposal submission" Guido Hiertz et al ComNets

Questions
- Have you quantified overhead of every station beaconing? Yes will provide simulation results next meeting, with 802.11a can support twice as much throughput as without.
- How is interference range used? Beacon must be at mandatory PHY mode. Reception over a 2 hop neighborhood is good enough to mitigate all interference
- What if many BSSs overlapping? First MP defines CFP duration, rest use the same.
- How do you sync? IBSS describes this. MPs use IBSS mode of sync. If your receive beacon at higher speed you copy.
- If all beacons are at same time isn't there collision? No, only one at a time, can re-use over distance. Beacon Period access protocol?
- If CFP duration is fixed in advance, what about per frame efficiency? Working to make it flexible – whole network could change.

14:03 Partial Proposal D:17, Intermittent Periodic Transmit Forwarding
11-05/680r0 "IPT Forwarding Overview" Hiroshi Furukawa et al Kiyushu University

Questions
- Idea is to achieve re-use by creating synchronization? No, no sync required, MPs transmit immediately after receiving.
- Is network pre-planned? No, one single mesh path given, that's why need reservation.
- How is it a single path? Depends on frame forwarding method, route already set up.
- Must frame lengths be equalized? Assumed here, but would be possible without, albeit more complex.
- How long must nodes in the path be silenced? Proportional to source frames to be sent.

14:32 Full Proposal N:18, SNOWMesh
11-05/731r0 "Overview of Secure NOmadic Wireless Mesh (SNOWMesh)" Jonathan Agre et al Fujitsu

Questions
- What channel model for simulation? ns-2 with simple model, recognize the importance for stability
- Packet size? 1000 bytes
- Single channel operation mode? Yes, one, multiple or mixed, re-use will emerge based on environment
- Secure multicast, why go one hop out, why not have one side exchange keys? Protocol needs work, may be a good suggestion
- Challenge is how much re-keying you do. Thought about support of 11i temporal keying, not a big issue, done at endpoints, do use group key for broadcast, only re-key if member leaves group.
- Will you re-key as nodes come and go? There will be a time out, anticipate lots of re-keying, haven't simulated, don't expect it to be bad.
- How to detect re-play attacks?

Session recessed at 15:25

Session IV, Tuesday, July 18th, 16:00-18:00, Hyatt Regency Hotel – Pacific LM Room

The Chair reconvened the session at 16:00, reminded everyone to use the manual Attendance system, and reminded everyone of IEEE policies regarding the use of recordings and photographs.

16:04 Full Proposal L:19, Siemens
11-05/593r1 "Siemens Partial Proposal for WLAN Mesh Networking" Michael Bahr et al Siemens AG

Questions
- Can a MP also be a MAP? Yes
- Can STA be a dest? Yes
- Do you need to change frame format (pg22)? No
- Where is STA information? It's in RREP, it's MAC address of STA, AP is just intermediate. Routing table includes STAs.
- What happens when you send packets to other clients? D has to do another RREQ? No
- You use pairwise key for header and encrypt part of data frame? Needs to be known by intermediate node. Working on details
- Anything about interference management? No
- Is Route Discovery secured? Assumed protected (eg . per .11w)

17:02 Full Proposal J:35, Proactive Mesh
11-05/386r3 Bing Zhang et al, presented by Youiti Kado Oki Electric

The latest version of the document is still to be uploaded by the author, changes are minor.

Questions
- Broadcast under OLSR – any packets to multicast address will be broadcast to all nodes? Yes
- Impact on performance? Not studied yet
- So, multicast video is unicast to all links? Not sure
- Flow based load balancing, how much consideration for practicality, particularly storage requirements? 2 types of pseudo flows, Type 1 requires more storage than Type 2.
- Slide 29, beacon to learn number of interfaces means? Beacon carries information about number of interfaces
- Time stamp, who's stamp is it? Currently assume all nodes know all others. Stamp every packet, may need to change strategy, maybe control by how often you make request frame.
- Not sure how accurate time stamp is, frames may stay in node? Stamp means when packet received.

Chair adjourned the session at 17:48

Session V, Wednesday, July 19th, 08:00-10:00, Hyatt Regency Hotel – Grand Ballroom C

The Chair convened the session at 08:01, reviewed the status to date, the agenda for the rest of the week and reminded people to use the manual Attendance system

08:04 Partial Proposal E:5, Hybrid Mesh Routing
11-05/696r1 "A Hybrid Mesh Routing Protocol" Hang Liu et al Thomson Inc.

This proposal is merged with the Wi-Mesh Alliance Proposal (B:31)
No questions

08:33 Partial Proposal O:29, Self Organizing
11-05/611r2 "Self-organizing and Auto-configuring Mesh Networks" Alexander Cheng C-cation Inc.

Questions
- Assumption is that clusters will be fully meshed, what if not so? Simplest is cluster of 1, if you put enough devices close enough together you can increase carrying capacity
- Is this just scheduling or everything? Several ways to implement, probably MAC enhancement, however if only 2 nodes, probability of contention reduced, can use existing protocol
- Is there routing protocol on top? Yes, links go within clusters
- Is algorithm centralized or distributed? Who decides timeslots, where is info stored? Distributed, however goes through a node propagation process

09:02 Full Proposal A:8, Mesh DCF
11-05/594r2 "A MAC Partial Proposal for IEEE 802.11s" Rui Zhao ComNets

Questions
- Explain difference between valid and invalid beacon? Invalid (slide 25) will switch state to Interference State
- Is Synchronization reason for efficiency? Yes
- Do you use same frequency as much as often? Yes
- Is this related to other ComNets proposal? No
- This is a pure MAC proposal? No, also includes RLCP, which provides CAC
- More details on CAC - is there a means to ensure whole mesh has enough capacity prior to allowing a new call? Slide 35 describes how to decide if there is enough resource

Chair recessed the session at 09:47

Session VI, Wednesday, July 19th, 13:30-15:30, Hyatt Regency Hotel – Grand Ballroom C

The Chair convened the session at 13;31, reviewed the Agenda to date and for the rest of the week, and reminded everyone to use the manual Attendance system.

13:34 Proposal F:3, Dynamic Backbone
11-05/142r1 "Proposal for a Dynamic Backbone Mesh" Dennis Baker et al NRL

No questions

14:03 Partial Proposal M:22, Common Control Channel
11-05/707r0 "Short presentation on the CCC protocol for mesh MAC" Mathilde Benveniste Avaya

Questions
- Where is the time base that allows channel allocations made on control to be successfully interpreted with other channels? There isn't time base scheduling, only sync is for residual lifetime
- With NAV procedures, there is heightened probability that stations which change frequency will miss messages on channel they're not on. Generally there is no flipping, 2 Rxs, one to track control channel,
- If an STA want to send data, how many packets before I get my TXOP? RTS/CTS 2 way is enough for entire TXOP
- For 32 Mesh APs, how many channels are needed? Function of traffic, no limit here
- How many Mesh APs can be supported? One control radio and one traffic
- Assuming Each MP has two radios. Minimum is 1 Tx 2 Rx

- How much do you loose by setting aside one channel? Simulations coming. Don't loose, need RTS/CTS for hidden, anyway, just moving to control. Can put data on control, but don't want that in heavy usage, control must be reliable.

14:32 Full Proposal B:31, Wi-Mesh Alliance
11-05/573r3 "Wi-Mesh Alliance Proposal for 802.11 TGs" Juan-Carlos Zuniga, Susan Hares et al

Questions
- Periodic mode frame starts in CP waiting for next CFP, then waits for next CP at other end, means 100ms delay. Design scheduler in advance for VoIP (can't do for TCP) 100ms is standard value, can be changed.
- Comment - Can reduce beacon, but fair amount of complexity to gets lots in CRP, get greater latency, why not just remove slots and due normal contention
- How do you ensure stability and convergence time of routing protocols? Two parts: transmission and algorithm calculation, the latter is now very short, need simulation and careful benchmarking.
- Comment - TGi does not handout keys to more than 2 parties. So every node has its own connection to the AS? Can't do this.
- Three independent MAC protocols – must all be implemented? No, looking for feedback from operators and vendors.
- In dynamic proposal do you have scheduled meeting times? Negotiate MTXOPs, each has timing info, you choose channel, and time to talk again
- Re-visit time is? Up to scheduler, should be <10ms
- Time to re-tune a transmitter? 100us
- How to ensure legacy devices respects MTXOP. Aren't meant to, have to compete during that interval in second two modes
- Slide 42, 43 Clarify which routing protocols are part of proposal? Hybrid link state, Hybrid distance vector, kick start
- Could you use the TGi Group Transient Keying?

Session VII, Wednesday, July 19th, 16:00-18:00, Hyatt Regency – Grand Ballroom C

The Chair resumed the session at 16:01, described the ballot process, and outlined the Agenda for this session.

16:04 Proposal G:7, SEE-Mesh
11-05/567r2 "Simple Efficient Extensible Mesh (SEE-Mesh) Proposal Overview" W. Steven Conner et al

- Congestion feedback – does mechanism go to STA or terminate at network edge? Primarily between MPs, nothing new in STA
- Comment - If you shut down source, you move congestion
- Effect on real time traffic? Not mandating behaviour of node when slowing down, just signal, individual MP can make decision how to slow down traffic
- Performance of video using EDCA – WNG presentation (632) says it may not be sufficient
- If STAs don't have congestion control can they operate? Don't need to. BSS functionality is beyond scope, techniques exist today in 802.11
- Is there a dedicated channel for the mesh? Proposal allows for either single or multi.
- Many proposals for dedicated resource for mesh coordination, how does this fit in? Proposal still has room, but decided complexity didn't justify, EDCA OK for today.
- Prefer data and co-ordination sharing resource? Yes, using existing MAC techniques.

- Slide 17 – group key – is that within mesh? Group key is per 802.11i, one hop.
- Wouldn't you use pairwise key. For unicast, yes, for broadcast use group key
- Frequently will see multiple meshes, how will end-to-end routing and path discovery work, eg. TTLs? Multiple L2 meshes means use higher layer protocol to interconnect and maybe expose some characteristics to them. A mesh is a single L2 segment. Work to be done
- AODV is default unicast protocol, why? Doesn't require every device to store all information, subsets can participate, also has been demonstrated.
- How support multicast routing? Approach so far is use broadcast to achieve multicast.
- Want to support LWMPs, but AODV has calculation constraints and there are broadcast requirements? LWMP can talk to only immediate neighbour in the network, no routing or forwarding.

Chair discussed the "TGs Process" document 11-05/662r1, reminding us we were behind the typical schedule for other TG. Current schedule calls for Draft by March 2006, Letter Ballot by July 2006.

The Chair explained voting process and answered all questions asked for clarification on the process.
A suggestion was made to add the presentation document numbers to the Ballot information page and the Chair agreed to do this.
Note that not all the presentations made this week reference all the related documents for a particular proposal. The Chair referred people to 11-05/597r7 for his information as to which documents constituted a proposal.
It is expected that results of the balloting will be in the TGs Closing Report.
Document updates are optional, but if made are as required in the Process document (11-05/274r10).
For presentation ordering at future meetings after this one, the Chair will use a procedure based on publicly verifiable random generation as described in an IETF RFC

The Chair proposed a schedule for an ad-hoc meeting.

Suggested that 802.11 TGs hold an ad hoc meeting August 30th through September 1st in Portland, Oregon, to discuss proposals, as previously approved by the 802.11 Working Group.

Discussion ensued
14 people indicated they would attend if such an ad hoc was held

It was suggested that 14-16 September, right before the next 802.11 meeting, somewhere on the west coast of the USA would be more convenient.
11 people indicated they would attend.

A complaint was lodged that the August 30th – Sep 1st dates conflicts with an 802.16 meeting.

The chair called for a motion to hold an ad hoc before the next 802.11 meeting. No one being willing to make such a motion, no ad hoc will be held.

Moved**,** that TGs hold a teleconference at 11:00 Eastern Time on Wednesday, 14 September 2005 to discuss the agenda for the September meeting. Notice will be given on the mailing list at least 10 days in advance.
Moved Guido Hiertz
Seconded Tricci So
Adopted by unanimous consent

Presentation 11-05/0172r4 "A security model for wireless meshs" Robert Moskowitz

Questions

- When MP is subverted what attacks can it make? Worse in a mesh, knowing routing info, it can make all traffic go through it. All APs' data are de-encrypted in that MP – it's man in the middle.
- Could a virtual tunnel prevent that? You'd get key explosion. AP still has the keys and can decrypt.

The Chair recessed the session at 17:71

Session VII, Thursday, July 20th, 13:30-15:30, Hyatt Regency Hotel – Grand Ballroom C

The chair convened the session at 13:31, outlined the Agenda for the day and reminded everyone to use the manual Attendance system.

Each of the presenters summarized their proposals per 11-05/274r10
13:35, C:6 Cooperative Protocol
Indicated they were merging with B:31.
13:40, K:32 Samsung
13:45, I:20 Tree Based Routing (TBR) 11-05/791r0
13:50, H:9 Mesh Networks Alliance (MNA) 11-05/788r0
13:55, D:17 Intermittent Periodic Transmit (IPT) 11-05/770r0
13:59, N:18 SNOW Mesh 11-05/784r0
Indicated they were meging with G:7.
14:04, L:19 Siemens 11-05/785r0
14:09, J:35 Proactive Mesh 11-05/778r0
14:14, E:5 Hybrid Mesh Routing
Indicated they were merging with B:31.
14:17, O:29 Self Organizing
14:10, A:8 Mesh DCF 11-05/789r0
14:25, F:3 Dynamic Backbone
14:29, M:22 Common Control Channel
14:35, B:31 Wi-Mesh Alliance (WiMA)
14:414, G:7 SEE Mesh 11-05/787r0

The logistics for voting were described, with the official ballots being given out at the head table by the Secretary and Chair and the completed official ballots being collected at a side table by the 802.11 Chair Stu Kerry and Vice Chair Al Petrick. Balloting occurred using the July 2005 TGs Ballot forms with voters being called up by the first letter of their last name from N through Z and then A through M.

See Appendix below for the results of the balloting.

The Chair adjourned the session *sine dei* after all votes had been cast at 15:15.

Appendix: Balloting Results

After adjournment, the ballots were counted and cross checked by Stuart Kerry, Harry Worstell, Al Petrick and Donald Eastlake. The results, as announced at the 802.11 Plenary the next morning, were as follows:

Rank		Proposal	Yes	No	Abs	Yes Ratio
1	G	SEE Mesh	114	22	5	83.58%
2	B	Wi-Mesh Alliance (WiMA)	89	26	26	77.16%
3	K	Samsung	84	25	32	76.82%
4	H	Mesh Networks Alliance (MNA)	68	44	29	60.62%
5	J	Proactive Mesh	48	41	52	53.89%
6	C	Cooperative Protocol	60	55	26	52.16%
7	E	Hybrid Mesh Routing	49	47	45	51.03%
8	L	Siemens	55	53	33	50.92%
9	N	SNOW Mesh	54	57	30	48.66%
10	M	Common Control Channel	39	76	26	34.05%
11	I	Tree Based Routing (TBR)	37	74	30	33.48%
12	A	Mesh DCF	25	72	44	26.02%
13	F	Dynamic Backbone	19	83	39	18.93%
14	D	Intermittent Periodic Transmit (IPT)	11	84	46	11.98%
15	O	Self Organizing	10	88	43	10.61%

As per the process in 11-05/274r10, those proposals with a Yes Ratio of 25% or less are eliminated except that they may merge with other proposals.

IEEE P802.11
Wireless LANs

Minutes for the Task Group T January 2005 Session

Date: 2005-07-19

Author(s):

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Abstract

This document contains the minutes for the 802.11 TGT meetings during the San Fancisco 802 Plenary.

Tuesday, July 19, 2005, 8:00 AM

TGT chair, Charles Wright– calls the meeting to order.

Minutes taken by Will Smith

Chair: read through standard policies, ie patent policies, LoA, anti-trust issues, attendance logging and credit
Chair: Read meeting objectives.
(see slide 7, document 11-05/0669 r0)
Chair: Discussed progress since Cairns
- Accepted proposal 11-05/450r1 into the draft to create D0.2.
- 6/2/05 conf call - Discussed possibility of TG internal review of draft, starting after July meeting

Chair: Calls for approval agenda. Approved agenda
Chair: Asks for comments on Minutes:
4.1 11-05/0509r0 Cairns, AU 802.11 Interim meeting
4.2 11-05/571r1 – 6/2/05 Telecon
None were given.
Group approves minutes.

Chair: Calls for presentations. Provides list of received presentations and asks for any additional. Also, need to schedule presentation order.

1. 11-05/723r0 P. Mehta, "Data Usage proposal for TGT" - 30min
2. 11-05/661r0 S. Tolpin – "Conducted Test Environments and Metrics " (proposal 11-05/660r0) – 120min
3. 11-05/711r0 F. Pirzada – "OTAR test environments, metrics, and methodology" (proposal 11-05/712r0) – 60min
4. 11-05/676r0 – T. Alexander "Link Layer metrics proposal" (proposal 11-05/638r0) – 30min
5. 11-05/703r0 M. Emmelmann "Methodology for employing variable attenuators in a conducted test environment" (proposal 11-05/702r0) -30 min
6. 11-05/719r0 M. Foegelle - "Environment simulations using s-parameters" - 45 min – not ready until Wed
7. 11-05/757r0, 11-05/745r0 C. Trecker, C. Wright – "Roaming test methodology" (proposal 11-05/537r0) – 45min
8. 11-05/758r0 M. Kobayashi – "ACI Test Methodology" (proposal 11-05/759r0)– 30 min

Chair: Modified agenda with presentations, called for acceptance of modified agenda – no objections, agenda modified and accepted.

8:50am Pratik began presentation "Data Usage Proposal for TGT"

9:05am Sasha began the presentation "Conducted Test Environments and Metrics"

Slide 10 – Fanny: Asked for clarification of WLCP (Wireless LAN Counter-Part)
Dennis Ward: Concerned that "conductive" test is not real world, suggested including multipath and path loss testing.
Uri: Answered that OTA test is what he's describing, the conductive tests focus on actual device outputs.
Michael Foegelle: Added that this was just a first step, and that those tests are a natural progression
Tom A.: Questioned the logical/physical nature of the boxes in the diagram.
Pratik: Answered they are logical functions, not physical devices

Dennis W.: Also mentioned antenna diversity was discussed, but the diagram showed combiners.

Uri: Answered that it relates to effectively measuring the power.

Slide 12 – Chair: Asked for clarification that throughput is the good + retry = frames over the air, then asked for clarification on non-acked rate definition. Trying to quantify the ack's you don't hear. Only the case where the receiver doesn't send an ack – doesn't when the transmitter didn't send the frame (part of retry rate)

Slide 15/16 – Uri: Throughput most important metric

Marc E.: Asked to ensure changes aren't made while testing.

Sasha: Confirmed that variables only changed after test data gathered

Fanny: Offered support for this process, stated it is important to specify/define frame size versus gap size for traffic that is sent.

Sasha: Stated proposal included specs for different frame sizes.

Chair: Asked if this graph was TCP

Sasha: Acknowledged it was.

CC Tsien: Conducted traffic is under load?

Sasha: Stated it was fully loaded.

Tom A.: Industry definition of throughput as load with no loss.

Dennis W.: Asked to consider naming it TCP throughput test due to diff in results with UDP test. Also asked if considered correlation measured input power at receiver versus power viewed at DUT. If someone wrote drivers for a DUT to ask for receive power, how can you record input power with RSSI.

Chair: Commented no proposals have been made to address that issue.

Dalton: Throughput measured in 0 packet-rate, Fanny added that this will be called a Forwarded Packet Test.

Fanny: Wanted to add that we need to know duration of test at each measurement point

Chair: Asked if TCP/UDP decision clarified, and Sasha said it should be stated and Fahd said it would be a modifier for the test.

Tom: "Goodput" measured in MB/s and includes overhead or should you only measure frames per second?

Chair: Added report can have both.

Pratik: Stated that this diagram was clarified as a TCP throughput which is MB/s, not FPS.

Andy E.: Would be helpful to see max theoretical throughput, which can be included in report for comparison.

Fanny: Stated it would be shown on the same graph, and while not part of TGT charter, the delta could be shown as a "quality" metric.

Uri: Max theoretical will never be reached because of all the other factors, and feels it's not a valid comparison

Chair: Said multiple ways to handle max theoretical. Not possible to get max theoretical when level is down, but you can get very close when input power is maxed.

Pratik: Asked why are we looking at this metric?

Andy: Said it's a benchmark to know how far off you are from the "standard" each device is supposed to achieve.

CC Tsien: Supports max theoretical because when standard is defined, the max theoretical is important for people to compare products against that value.

Slide 20 – Fanny: Asked for clarification on how "Best Throughput" defined.

Sasha: Said the max throughput observed at fixed data rates and then when set for "auto" comparing the results to the fixed.

Slide 24 – Fanny: Asked if all devices allow configuration or if there is some NDIS command to set the values for fixed rates?

Uri: Not oriented to consumers, but more for helping to improve products.

Chair paused Sasha's presentation for session recess at 10:04am.

Chair called the meeting to order at 10:30am.

Sasha resumed presentation with Slide 25.

Slide 27 – Dennis W.: Asked if considered using a single IO.
Uri and Sasha: Stated the specifically decided against.
Michael F.: Long-standing problem where we don't have a box, but are forced to take off-the-shelf devices and disable functionality to get the desired effects.
Slide 28 – CC Tsien: Asked if testing antenna
Sasha: confirmed that this is conductive, and only testing "Diversity" switch within DUT

Presentation concluded.
Chair: Asked if any additional comments on Diversity.
Tom A.: Asked if we are going to do all the motions on Thursday.
Chair: It depends on how long it's been on the server for peer review. By this evening, both will have met the minimum time criteria, but let's take a few minutes to discuss procedure. I am concerned with the time it will take to review and discuss, given the overlap with TGn sessions on Thursday, I have concerns over attendance if we wait to vote until Thursday afternoon. I think we should discuss and vote on Wednesday afternoon.
No objections were raised, so the proposals contained within the following three presentations will be discussed and voted upon in Wednesday afternoon's session.

Fahd began presentation "OTA Metrics and Methodology" (11-05/711r0)
Will Smith: Asked if OTA Outdoor NLOS was explicitly excluded as a test.
Fahd: Replied that it was determined to be closely related to Indoor NLOS.
Fanny: Discussion on need for conducted testing versus chamber OTA
Slide 5 – CC Tsien: Since not conductive test, what output power? The graph is showing attenuator alone, not the total path loss.
Slide 6 – Tom: Asked for clarification on climate.
Fahd: "Not in an oven."
Will: Asked if proposal described the construction material of the obstruction
Fahd: It is discussed a little later in the presentation. (He then addressed the question on Slide 7.)
Slide 9 – Michael F.: Asked about the value of the data in these readings, because when the same device is taken to a different open-air test location ,the numbers will be different.
Pratik: It's impossible to create a standard test environment
Michael F.: It's important to consider when a person reviews the "standard" a year from now and tries to build their own OTA environment and their results are different.
Mike G.: Stated that multiple points need to be tested from a particular range to get the multipath impact to the results.
Fahd: Said that was a valid point.
Dennis W.: Said Fahd was on the right track. With respect to previous comments, if this is included, details and a potential method for site certification in order to "fluff" specs to manipulate their results.
Andrew: Had a question about the turntable, and the fact that it was spinning during the test, and how it relates to corporate deployment
Fahd: Said the spec in the proposal document addresses that.
Michael F.: Discussed his previous recommendation regarding moving DUT through the various nulls in a multipath environment.
Mike G.: asked about calibration of the test environment.
Andrew: Asked for clarification on the chamber – isolation or non-echoic.
Fahd: Stated the proposal does not state whether or not it needs to be non-echoic.

Dennis W.: Asked if TGT considered correlating RSSI with throughput, and Fahd stated since the RSSI values vary significantly, it cannot reliably be included in the standard.
Chair: Stated that RSSI is not being used like it was intended, and 802.11k is working to address that particular metric.

Slide 10 – Tom A.: Commented that the conductive test and OTA graphs were similar.
Fahd: Said that the DUTs were different so you cannot compare the results.

Fahd concluded his presentation at 11:36am

Marc Emmelmann to give his presentation "Methodology for employing variable attenuators in a conducted test environment" which began at 11:40am.

Slide 5 – Uri: Asked about attenuators on both AP and WLCP
Marc: Commented it was simply an example when you want to ensure the analyzer can see the variations from both sides.

Slide 7 – Marc: Identified a clear distinction between this proposal and the other test proposals is that this test involves changing the attenuation during the test cycle, while the previous test methodologies involve setting the attenuators, measure, stop testing, record, change attenuation, measure, etc.

Fanny: Supported this presentation and felt valid to include both attenuation testing types.
Joe: Question related to fade model used. Asked to what detail will this information reported?
Marc: Would like to see that discussed.
Joe: Asked if fade models will be included, or if the end user needs to document the model used.
Chair: Stated that he hoped the TGn models might suffice.
Marc: Said he is not including channel models, but focusing on receive power but changing attenuation values. The method just needs to be reproducible
Niraj: Asked if Marc had any data on rate of change.
Marc: Replied he gave a presentation at the Atlanta Plenary.
Michael F.: Interested more on mechanics of the problem – times involved with the change, and if electro-mechanical attenuation, could have other issues that affect the readings. In fact they would be more logarithmic versus linear.
Chair: Stated this will be covered in the Roaming presentation during this Plenary.
Pratik: Why do we want to change the attenuation during the measurement?
Marc: Stated you can measure the observed transition time during BSS roaming.
Pratik was still trying to understand the need for this methodology.
Chair: Stated this test could be used when the DUT is a client, AP, or any other element of the network.
Pratik: Asked Marc specifically why he thinks this is important
Marc: His colleagues were focusing on BSS transition times, and this parameter was important to the results, and that it is important to measuring delay sensitive applications.
Areg: Presumes main modifier was received signal strength. Asked if QoS was configured on APs.
Marc: Directed to Chair, stating he wanted to be sure he wasn't getting into BSS transition proposal.
Areg: Agrees this is a valid test, but wanted to state there are many more variables involved in the transition time.
Andrew: Asked if using step or continual attenuators.
Fanny: Replied that Azimuth Systems were used and they are continuous.
Fahd: Having hard time matching test set-up with what are we trying to measure, and placing Marc's methodology without having specific metrics.
Tom: Stated that there were other proposals that do not have metrics (calibration, etc).

Tom: What is the desired end result – stand alone methodology or combined with others?
Marc: Stated it didn't matter, but that it is appropriately referenced when needed for a particular test.
Dalton: There should be some experimental data included in proposal. It would be helpful to see experimental data from the make-and-break connections.
Tom: Added that their devices step in the hundred microseconds and steps between packets.
Andrew: Asked about attenuator settling time.
Dennis W.: Commented that what was shown was specific, but described as consistent.

Marc concluded the presentation at 12:27pm

Chair adjourned the morning session at 12:29pm.

Tuesday, July 19, 2005, 7:30 PM

TGT chair, Charles Wright– calls the meeting to order.

Minutes taken by Will Smith

Chair: Reviews accepted agenda, summarized that presentations 1,2,3 and 5 were performed earlier, and Tom and Michael are scheduled for this evening.

Fahd: asked about setting a specific time for motions.
Chair: Noted that having these motions tomorrow does not preclude additional motions, just that it will be easier to keep track. Proposing to modify agenda to include the specific time of 4:00pm on Wednesday 7/20/2005. No objections, agenda modification accepted.

Tom A. begins presentation 11-05/0676r0, "Link Layer metrics proposal" (proposal 11-05/638r0) at 7:39pm

Slide 4 – Fanny: Asked about "failover tests"
Tom: I will cover that later.

Slide 5 – Sasha: Asked why these metrics are defined as secondary
Tom: These parameters are not defined as directly user affecting
Uri: Stated that in describing the graph, the test would be performed where PHY affects are not affecting performance.
Fahd: Stated that the methodology is very flexible but there is no sample data, yet the document includes verbiage about making a motion to accept the proposal.
To: Agreed, have done these test and will incorporate sample results. Had planned to wait on the motion.
Fanny: Comments that InterFrame Spacing and Back-off timers need to be specified in the testing.
Chair: Stated these parameters need to be defined under "Test conditions" in the report.
Tom: Should be "informative annex" since these parameters are defined in 802.11e, and you can distinguish what can be tweaked, and the resulting improvements.
Slide 6 – Fanny: Asked if quantity of clients are specified
Tom: That's a Configuration parameter
Dennis W.: Asked if 11e "fixed" multicast, because when more than 1 client, packets get dropped and performance suffers, and practically
Keith A.: Confirmed that 11e did not do anything to address multicast.
Chair: Interested in any data the Dennis might have on how multicast fails.

Fanny: Asked if text specified on how the data is gathered from the clients themselves.
Tom: Does not want to get into specifying the client
Chair: Variety of ways, and diagrams on slide 3 show sufficient info that it is understood that data needs to be obtained from clients, according to the client being tested.
Fahd: Traffic generator question – one or multiple devices?
Tom: Depends on what you want to test, and does not want to specify what is generating the packets, but will specify the format of the data to be generated.
Fahd: Did not see that detail in the proposal text.
Tom: Will review and add details as needed.
Fanny: Interesting test, since clients may be different data rates
Chair: Question about need for multiple receiving clients instead of just one?
Tom: Good Point. AP can handle multicast traffic differently with one client versus multiple.
Keith A.: AP-dependent on how if buffers data, etc, so no easy way to define.
Chair: The number of clients should then be a test condition.

Slide 7 – Fanny: Authentication server is a limiting factor, correct?
Tom: Yes, agreed.
Chair: Then you need a super-fast AAA server, which is hardware issue
Sangeehta: How is this measured?
Tom: Clients per second
Fahd: Latency? Any implications on Data Side?
Chair: Fail-over AP case when authentication rate is important. Also, this is more of an AP QoS metric.
Areg: Considered fast-reauthentications?
Tom: Does not specify whether client will or will not pre-auth.
Areg: Meant fast-reauth, where RADIUS server caches key, and so it can handle better loads?
Tom: That's not a function of the AP. Whatever RADIUS mechanism is used, should be used for all tests.
Fanny: Asks for overview of test procedure.
Tom: Take *n* clients and turn them on at the same time, measuring how long it takes for all clients to authenticate.

Chair: Discussion related to time left in the session.
Tom: Might be good idea to stop and let folks review the proposal more.
Chair: Accepted suggestion and remainder of presentation postponed until Thursday.

Michael Foegelle began presentation 11-05/0719r0 "Environment simulations using s-parameters" at 8:30pm

Slides concluded at 9:00pm, opening for discussion.
Neeraj: Any real-world test data?
Michael: Yes, we do it for cell phones every day.
Dennis: Very good paper, processes and procedures have been used in radio received design for years, and are very sound, and challenge will be in building models for channel selection. Stresses will still have to do field testing.
Pratik: Excellent presentation. What can be done to run experiments with patch cables in a lab to validate the approaches and techniques from other testing organizations? Would like to see the experimental data in the document. Given this approach compared with the other approaches presented, is this a replacement or augmenting approach?
Michael: Many different ways to achieve the results, and OTA still works, but if it can be done faster/cheaper with cables to simulate that same condition, it is warranted. Michael showed tool used to generate the presentation graphs, and showed a sample room where the reflection paths were stronger than the direct path.
Tom: Commented that TGn has done a lot of work with this.
Michael: What's the point? To get an average-case and a worst-case performance.
Chair: Can be achieved with these different measurements in an appendix.

Pratik: Deliverable needs to contain the best method or two to achieve the test results, not include all 7 possible ways.
Uri: What channel models to we need to make?
Chair: Commented that we currently have six models (TGn channel model document 11-03/940r4).
Fanny: Agrees with Pratik. If we have models, we need to leverage without making too many, since "more is not better."
Shravan: In TGn they consider not only the channels, but with and without impairments.
Dalton: Is is easier to simulate or easier to capture platform noise in the real world?
Michael: Still have to do OTA in order to get that real-world noise measurements.
Chair: how many OTA tests in CTIA?
Michael: Two principal, to get total radiated power, and total isotropic sensitivity, the rest are lab tested.
Pratik: Cautioned that their protocols behave very differently from 802.11
Michael: Base station simulators are similar – have noise insertion, and other tools that inject the impairments, and hopefully WLAN test tools will come around.
Dennis: Cautioned against developing too many channel models. Also no substitute for gathering real-world noise levels via OTA testing.

Chair: reviewed schedule for Wednesday, adjourned meeting at 9:27pm

Wednesday, July 20, 2005, 1:30 PM

Chair: Called meeting to order, back from recess. There are a couple of proposals to go over. Reminder to group of the standing orders for the 4pm vote on the selected proposals from Tuesday.

Covered 5.1 to 5.6, with the exception of 5.4 which will be concluded Thursday.

Chair will co-present with Chris Trecker, so asked Michael Foegelle to act as chair for the duration of Fast Roaming presentation, and M. Foegelle accepted.

Chris Trecker and Charles Wright began presentation "Roaming Test Methodology" proposal 11-05/537r0 (presentations 11-05/757r0, 11-05/745r0) at 1:35pm

Slide 8 – Mike F: Seems like powering off and rolling are extreme cases.
Charles: Yes, they are, but they are all valid approaches.
Dennis: First question – client-reciever scanning rates, which is somewhat dependent on the driver. Second question - have you considered a baseline by setting particular data rates to keep transition times more measureable?
Chair: The second question would be addressed in test conditions. The first question will be answered later.
Dennis: Maybe questions were premature.

Slide 15 – Neeraj: What do the different colors represent?
Chris: Representative sample of various clients.
Shravan: Asked about channel separation.
Charles: normal.
Shravan was concerned that transition time might be different when you're going to different channels.
Charles: Takes it that you think this is a valid metric.
Sangeehta: Did you consider scanning time?
Charles: Handsets are aggressive scanners, so their transition time is generally quicker, but it is up to the client, and that is what is trying to be measured.

Sangeehta: Would like to see test parameters to understand difference between 11i and 11r, because they are similar.
Chris: Described how they are not really similar. 11r caches the keys to enable the faster roaming time.
Andrew: Do you see any flapping?
Chris: Believes it's algorithmic, because there is no real predictability as to when we roam.
Michael F.: Did you use different attenuator profiles to control the overlap?
Fanny: There was a way to do that, and it did affect the transition time.

Chris concluded his presentation and Charles began 11-05/745r0.

Slide 5- Uri: Necessary for Resistive Splitters versus "regular" splitters?
Charles: Using resistive makes better performance response values in the isolation.
Will: Symantic question on use of "Wireless" monitor, when actually conductive test using cables.
Dalton suggested naming it an 802.11 monitor to show you are looking for 802.11 traffic, regardless of the medium the data travels.
Charles: That's a good compromise.
Pratik: relates to voice?
Charles: This is a metric for roaming.
Slide 7 - Areg: can you use other triggers for the roaming?
Charles: Yes, but we need to make sure it doesn't distract from the objective of measuring the transition time.
Marc: Many different ways, and not received signal strength, but it depends on the equipment, but the goal of the metric is measuring the outage experienced during a roam.
Slide 9 – Tom A: Shouldn't you include inter-roam delay?
Charles: You can, and it was debated.
Michael F. Stated he favored including it.
Discussion of how it will fit into the draft.
Tom A: Clause 5, most likely.

Presentation concluded at 3:03pm

Mark Kobayashi began presentation presentation 11-05/758r0, "ACI Test Methodology" (proposal 11-05/759r0) at 3:04pm

Slide 6 – Uri: Attenuators for AP outband and station?
Dalton: There are, but they are fixed.
Discussion on verbiage related to AP Outband instead of WLCP.
Don: Does this preclude the ability to test on other than adjacent channels?
Mark: It was written fairly loose, so you can test on other than adjacent channels.
Uri: performance is more impacted by the side lobes counterparts, not DUT.
Tom: Hypothetical vendor that makes a good transmitter, but bad receiver. When he publishes results, they are skewed.
Mark: suggesting methodology, not devices that fit the blocks.
Tom: Isn't it a responsibility to spec the components other-than-the DUT, so that you can get consistent, repeatable results.
Mark: Note the key devices using.
Michael: The one critical question – ACI result of stuff getting through my filter, or is it a side lobe getting so strong it is interfering?
Jason: How would you construct signal that exactly matches the IEEE power mask?
Uri: Signal Generator, which can be repeatable. Define the set-up and the pattern.
Jason: there is "some thing" that generates the signal, then there are the other components.
Michael F.: Was throughput tested at the same time?

Jason: using real devices instead of signal generators could yield different results.
Tom: Measure the noise floor at the DUT? It could impact the readings.
Mark: No, but it could be included.
Michael F.: On calibration, made comment on using center frequency, but should have something in document related to "flatness" of the signal, etc.

Prestation concluded at 3:34pm

Chair: Asked if they plan to bring forth a proposal and if the draft had been on the server.
Dalton: Yes, it was up prior to plenary.
Chair: If no further questions, we will adjourn for break (3:36pm)

Chair called meeting to order at 4:00pm

Chair: Per standing orders, entertaining motions to previous presentations. Wants to make it clear that due to the number of proposals and the potential for large blocks of data to be applied to the draft, if your proposal does not pass, per Robert's Rules it cannot be voted on again in this session, but it does not mean it is completely dead. It could be revised and then re-introduced in the September session, if so desired.

Motion:
Motion on the floor to instruct editor to include 11-05/0660r0 and 11-05/0712r0 to the 802.11.2 draft:
Moved: Uri Lemberger

Tom: Would like them to be separate motions.
Pratik stated that the presentations were intended to be a bundle.
Chair clarified that a motion is on the floor awaiting a second.

Second: Larry Green.

Motion opened for discussion.
Uri: Discussed at high level the Conductive test, OTA test and how they a complimentary
Michael F.: In terms of submissions, great first start, but just looking at introductory verbiage what Uri described is not included in the text, so has concern that one reading the proposal that the verbiage is not as clear.
Fahd: In support of motion, feels clearly specified verbiage on repeatability.
Jason: Proposes a friendly amendment – tables 3 and 4.
Chair: so you're proposing a small change
Jason.: In document 11-05/712r0 remove parenthesis and change "at a fixed rate of 1 rpm with an accuracy of +/- 50%"
Chair asks mover if agrees friendly.
Uri: Agrees.
Jason explains that the range of rpms for the spinner and accuracy parameter were not in line with reasonable test equipment.
Pratik: Is 1 rpm ok, or could it be 3rpm
Neeraj: Prefers a range of 1-5rpm to allow for more flexibility.
Jason: proposed this amendment to reduce the complexity.
Chair: Clarifying question – Are you specifying the baseline configuration and if you modify then you document and explain why.
Uri: It would be the baseline.
Fahd: What is in the table already states that there is the flexibility.
Chair: So motion with technical change in one of the documents. Is there further discussion?
Tom: Yes:
Chair: Asked if verbiage change was correct

Mark K: It's in all tables
Fahd: Yes it is tables 1-4, item 4.
Tom: In neither support of nor against, but as editor. He started to describe how document 11-05/0660r0 would be inserted into the draft.
Chair: Asked if he is about to describe how the editorial changes would be made, because he does not want that in the motion.
Fahd volunteered to assist the editor with the insertion.
Tom: figures in color, yet IEEE does not allow color. He will re-draw. Then described that the tables without data would be deleted and then the column header infor would be specified, but not in table format.
Larry: worried that we are fiddling and tweaking, not high level acceptance of document.
Chair: Yes we can change. Did you have a question.
Larry: I call the question.
Chair Any Objections.
Tom: I object
Vote to call the question and terminate discussion:
Yes: 28
No: 3
Abstain: 3

Chair: Thank you (to Tom). **Now we vote on the motion.**
All in favor, raise voting token:
Yes: 24
No: 0
Abstain: 7

Chair: Motion passes. Is there any other motion to be made at this time, any other proposal.
Tom: Point of question
Chair: That would be in order.
Tom: Then I have editorial license to make these fit into the draft as I see fit.
Pratik: Re-iterated Fahd's offer to assist the editor to make these fit.
Chair: Decided to wait on the motion for the Roaming proposal. There will still be opportunities for others to make motions later in the week, but for now, on to next agenda item.

Chair: Old Business. Tom's presentation was not complete, and Chair had an A.I. to go over TGT internal review process.

Tom resumed presentation 11-05/0676r0, "Link Layer metrics proposal" (proposal 11-05/638r0) at 4:36pm

Tom A. provided a recap of what was covered. Also mentioned he is taking away that he needs better sample data in presentation.

Slide 7 – Fanny: Still uncomfortable that we're testing the server, not the AP and would like to see data.
Tom A.: All the data I have is the server is a lot slower than the AP, but will it be that way for ever?
Fanny: What's the worst case – that they line up back-to-back, and then the AP rolls over and dies?
Areg: Is it fast re-auth? If so, the server bottleneck is drastically reduced and AP is tested more than RADIUS server.
Henry: More of a start-up issue, not necessarily a steady-state testing issue.
Chair: Comment that there was a presentation on the roaming metric earlier today.
Tom A.: Case where useful is in measuring call set-up times is phones.
Chris T.: Not call set-up but rather connection.

Chair: Before I take Larry's question, there are a lot of metrics, so cautions that we need to give each their due.
Larry: Metric might be critical to a narrow population, and while not necessarily the masses won't need it, but it may be critical for a subset.
Fanny: Agrees is it important, but wants the right clarification
Chair: So there is interest, may need refinement (Authentication and Association metric)

Slide 8 – Chair: Power save is near-and-dear, curious as to why it needs to be a client test? If it needs to come out of power-save.

Tom A.: How does the client know it needs to have high throughput?
Henry: How do you define the test? Is there a measurement to compare the throughput with the power used to do that?
Tom: exactly right, this is a secondary metric. It contributes to the user experience.
Shravan: Why isn't this just an AP test, if multiple clients are in power-save and the AP is sending frames to clients in power-save?
Chair: Sounds like something that needs to be considered:
Discussion on whether the station goes in and out of power-save and data lost, or if it will come out of power-save.
Fanny: Reminicient of a lot of tests we've talked about. Finds hard to read document without diagrams, references to clauses in the draft, and without descriptions of how to perform the tests.
Chair: Concerned that throughput is not necessarily the right measure to characterize power-save performance, but latency might be a better fit.
Sharvan: raises consideration of test with perspective of AP, methodology would be different since client behaves differently

Slide 9 – Fanny: A diagram is important to understand where the measurements are being made, and where the timestamps are being made.

Chair: Is latency-variation the same as jitter?
Tom: No. If you talk jitter, you need to define what type of jitter and their buffers.
Chair: I agree, latency and jitter are important, but clarify the difference – multiple types of jitter, definitions, and reporting.
Tom: Tried to avoid that by defining min-max delta with latency.
Further discussion on jitter, RFCs, etc.
Michael F.: question becomes how repeatable is that? If once in a hundred, an anomaly hits, he'd prefer a statistical model to discard that minority.
Fanny: Need more discussion, industry experts, etc to help.
Bill: CDF may be helpful in this case.
Chair: Agrees, esp. if the CDF shown at max offered load, or something like that.

Slide 10 – Fanny: Believes this is a special case of roaming, and needs diagrams.

Henry: In test methodology, how did you get client to associate to "primary" AP first?
Tom: Power up first AP, then wait for client to associate before powering up the second.
Henry: That assumes that the client won't roam to the second AP early.
Tom: That that is right.
Chris: Supports Fanny's comments
Chair: Are we testing clients or APs?
Tom: Tested as system
Chair: Roaming system has one client and two APs. What are you testing here?
Many people are unclear as to the DUT
Tom: Testing the AP that you're failing over to?
Fanny: As a metric, need to figure out what we're measuring, but it looks like we're measuring authentication on the AP.
Tom: Thinks it could be a specialized test, but with lots of clients.
Chair had concerns since roaming proposal test did not have lots of clients.
Tom: Stated it may be important for roaming test to have 1 to *n* clients.

Marc: What if AP fails, then comes back, then fails again (flapping) then they would forward traffic even though there.

Slide 11- Shravan sought clarification on intent of test.

Tom: Testing to see if beacon delay over time really is additive.

Michael F.: How can you test the impact to the client if the beacons have drifted?

Chair: Two questions, while these are interested in qualifying, but with respect to drift, worried about clients staying asleep past beacon intervals. So you're measuring the accuracy of the clock.

Tom: And the Software and drivers behind it.

Chair: So this is more of a conformance test?

Marc: There are other apps and functions that rely on accurate beacon-timing, so it is a valid item to keep an eye on.

Chair: seeking clarification on performance versus conformance.

Joe: Questioned Chair's perception of performance of a few devices, not necessarily a wider scale impact. Is the group's goal to focus on performance of one device, or a comparison across devices?

Chair: Anywhere in the standard where there is a specification limit, sounds like a conformance test.

Michael F.: If beacon testing conforms, does it impace primary metrics?

Chair: Related to ACI, the closer you are, the better inter-op.

Tom: So should this be dropped?

Chair: I don't know.

Slide 12 – Fanny: Subset of forwarding rate or throughput test.

Tom: Traditionally, it is a condition of the forwarding rate test.

Shravan: Need to define more configuration parameters to avoid this testing the Ethernet buffers.

Chair: Burst capacity is important from fast link to slow link. Ex. 11n to 11a link.

Fanny: These tests came from Ethernet switch, and then a long burst exhausted buffers. Also, need to make sure that you're not testing rate vs range, but needs to be sure that it involves a larger number of clients, since an AP can easily handle to load of one client.

Skipped slide 13, Association Databaase Capacity metric

Slide 14 – Areg: You figure out one is missing by sequence number?

Tom: Simple count of what went out and what was received.

Presentation concluded at 5:54pm.

Chair: completed 8.1, and wants to spend some time on 8.2 – doesn't think we'll have a TG internal review after this meeting. Opens for discussion on new business for Thursday.

Fanny: Suggests work together on how to incorporate these proposals into the draft.

Chair: Had been asked if we can give up a slot. They need time and a space. It looks like we have work we can do, so will not offer.

At 5:58pm, Chair adjourns until Thursday at 1:30pm

Wednesday, July 20, 2005, 1:30 PM

Chair called meeting to order at 1:30pm

Chair: Reviews the approved agenda. Completed through 8.1 and 8.2 was placeholder in case there was interest in reviewing the internal review process.

New Business
Chair: Has blank slide to determine this period mini-agenda, and asks group on direction.

Fanny: Suggests that since we have some good material, we could start to incorporate into the draft.
Tom: Usually that happens after it gets into the draft.
Fanny: Has seen it in several other groups.
Areg: Asks chair if ther is official procedure.
Chair: Describes a couple options.
Fanny: Suggests that those that are interested to stay while draft is on big screen to provide input.
Tom: Still seems strange, has seen group edit after the first draft
Will: It seems like Fanny is suggesting moving the large block of text from proposal over to draft, but Tom is thinking the group would be editing the proposal.
Fanny: agrees
Fahd, Tom and Chair: Discussed how the putting of the text into the draft, resulting in Tom putting large chunks of text, un-edited, into draft, then "editing" and bringing to group.
Chair: Then issue seems to be are we asking if the proposers want to help with that process.
Tom: Has plan for inserting the text, then sending the interim draft to proposers to ensure it captures the technical intent. If proposers agree, the draft gets sent to WG.
Chair: Agrees that is the technical process for the review.
Dalton: Agreed that it was also how Tom handled the Cairns input.
Fanny: still would recommend volunteers stay behind to help editor incorporate into draft.
Fahd: Asks Fanny for clarification if she is anticipating changes
Chair: We haven't seen the document to see how things are getting put in.
Fahd: Unsure of how the text fits into the overall document.
Chair: Asks if there is a reason to go through the proposal in front of the group to discuss how the proposal chunks will fit into the draft? Is that what you were talking about?
Fanny: Yes.
Fahd: Question to Tom, is that something you would like to have help with?
Tom: I can split in a couple of minutes, but there is no way to share the actual editing.
Chair: It's not that Tom needs help, but more Tom getting validation
Dalton: What was the point of the vote on the proposal if we're going to edit the document now?
Dennis W.: An outsider's perspective is that it's on the editor to incorporate and bring back to the group.
Chair: So we should remove from agenda, and I see no objections, so what do we talk about.

Michael F. :Teleconferences?
Chair: Ok, this could be interesting. Held almost weekly, but since Atlanta, Chair has had to cancel more teleconferences than have held, which reflects poorly on the group. Issue is that cancellations are announced on main reflector.
Fahd: recommends announcing teleconference a week in advance.
Chair: It's more opt-out than opt-in. They want to know when they are, not might be. WG Chair feels people plan on the times, and a 15-day notice must be given, and driven by sessions.
Fahd: What about bi-weekly calls?
Chair: Let's think about what we're doing as a group and plan it in session. This could motivate folks to have content to discuss. Ok with every other week.
Fahd: Suggests that discussion of editor's progress on draft should be a good action item on Teleconf.
Chair: Asks Tom on timeframe to get revisions included into draft.

Tom: Estimate for 3 weeks to complete update and post to 802.11 website. Can't make technical changes, but editorial corrections are allowed.
Chair: Correct, but group would build up list of technical questions for next session.
Tom and Chair discuss time for members to review off-line so Teleconf can be more productive.
Chair: Start review in 5 weeks, to allow 2 weeks for off-line review.
Tom: Agrees that going through a list of comments would be much more efficient use of everyone's time.
Chair: The way to get modifications into draft is a presentation along with another Word document with recommended changes, to be presented at the next session. Trying to get people think about the overall process. Since we're missing big chunks of the draft, it is better to go into comment/resolution now, or focus on the missing chunks of information.

Fahd proposed question about agenda item:
Chair discusses hypothetical timeline.
Marc: Proposing bi-weekly?
Chair: We would have 4 bi-weekly Teleconferences between sessions, beginning next Thursday. First one discuss things that have happened since meeting or new things, number 2 is open for new items, and last two review draft. Changes title of bullet to "Discussion of work to be done on tleconferences."

Chair lists:

1) Review of progress at SFO
2) New Presentations
3) Begin review of draft D0.3, which will be made available after telecom 2
    a. members review draft off-line, and provide written comments using standard comment submission spreadsheet
    b. Technical changes cannot be incorporated into the draft until approved during 802.11 Working Group meetings
    c. Editorial changes can be made before that.
4) Continue review of draft, last telecon before September Workign Group meeting

Chair: discussed comment/resolution process, then displays and reviews an old official comment form to show group what can be expected, and clarifies fields. "Part of No vote" means "this" must be corrected before I would vote yes.

Mark K: So you're going to issue a standard spreadsheet?
Tom: There's one on-line.
Chair: Wants to clarify that comments must include recommendations. Now discusses other new business, what other new presentations do we expect?

Describes the metrics, methods, and use-cases that have been presented thus far. Asks who would like to volunteer to work on items that are not included in the draft.

Michael F.: Plans to bring forward on RF and total radiated power, Total Isotropic Sensitivity
Fanny: working on voice test suite – packet loss delay and jitter measurements, and context for using them.
Fanny: Asked Chair if work on roaming would continue
Chair: Affirmed. Asked about update on ACI
Mark K: Affirmed
Marc: Has presentation ready and can give, but doesn't want to rush.

Pratik: First, asks group for feedback on data and proposal, in terms of structure and content.
Mark K: It's good to see the direction that "you" are headed.
Areg: Agrees with Mark, and from a consumer perspective, it was helpful to guide the direction.

Dennis: Stated will be an end user of this document, and showing the test methodology, along with what the outcome should be, would be very helpful to end users, especially if they have to interpret the results. Encourages group focuses on tests that are important, not just a test for test-sake.
Michael F.: Clarify to user what the test can and cannot be used for, to ensure appropriateness of test.

Pratik summarized responses.

Chair: Commented that if there are boundaries or limits for certain values used in the tests, should be included somehow.
Pratik: In the output interpretation, descriptions can be included to accommodate. Wished to thank the group for support and presentations.

Chair: Group is comfortable with action plan, and the amount of work ahead. Anything else before we need to vote?
Michael F.: Do we need a motion to approve?
Chair: Yes, but let's see if there are other items. Marc has updated presentation for "Variable Attenuators."

Marc Emmelmann gives updated presentation 11-05/703r2, "Methodology for employing variable attenuators in a conducted test environment" which began at 2:58pm.

Slide 9 and 10 - Fahd: Would like to see recommended step sizes.
Marc: Did not want the methodology to limit or restrict any tests. But if when you define the test, you identify that as a test criteria.
Chair: Must evaluate test to determine if changing attenuator is part of metric being measured. If so, then you need to know about it.
Marc: describes analogy of time to take to drive from SF to LA, but methodology should not spec type of car or speed traveled.
Michael: Radios respond in dB. Step size is important, because 1dB has a 12% affect on distance
Fanny: Have looked at trying to convert db to distance, but its such a messy thing (obstructions, multipath, etc), sticking with measuring in db.
Marc: So should linear/logarithmic relationship be included in methodology?
Fanny: It should be mentioned.
Slide 11 - Dennis: Thanks Marc for including "Change one item at a time" bullet.

Dennis: Wishes there was an AP emulator, and other comments
Fanny: Wishes for clarification from Dennis on how AP emulator would overcome.
Michael F.: An AP simulator would let radio adjust power instead of external attenuator. Test manufacturers haven't built these emulators since "market" hasn't asked. But they will eventually catch up to market.

Marc concludes presentation at 3:22pm
Marc would like to bring a motion.

Chair and group discuss 4-hr rule. Due to document server timestamp, Marc withdraws request for motion.

P

Motion
Motion to empower TGT to hold telecons between July and September
Mover: Michael Foegelle
Second: Pratik Mehta

No discussion, no opposition to calling question.

Time: 12 noon Eastern (US)
Duration: 1 hour
Dates: July 28th, Aug 11th, Aug 25th, Sept 8th

Yes: 12
No: 0
Abstain: 1

Chair: Any other business? Sees none

Pratik Motion to adjourn.

Mark Kobayashi: Second

Chair: Any objection? Hearing none, adjourns meeting at 3:30pm

IEEE P802.11
Wireless LANs

TGu Minutes for July 2005 Session

Date: 2005-07-22

Author(s):

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Abstract

This is the draft minutes for the IEEE802.11 TGu sessions of IEEE802.11 plenary meeting during the week of 18th – 22nd at San Francisco, LA.

Executive Summary:

Documents discussed:

1. Latest Draft Requirement Document 05/279r15
2. Motions regarding requirements and results 05/643r2
3. Liaison to IETF regarding review on MOBOPTS draft 05/558r3
4. Proposed down selection procedures 05/618r1
5. Updated timeline document 05/049r3

Mike Moreton is voted as the technical editor for TGu.
18 Motions regarding the requirements were voted. Results included in 05/643r2.
Two teleconferences were scheduled on 11th and 24th August 2005, both at 10 ET.
One joint session with TGv was hold

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1. Tuesday Afternoon Session: (19th July 2005, 1600 – 1800)

1.1 Meeting called to order by the chair at 1600

1.2 Review of the IEEE 802 and IEEE 802.11 policies & procedures (05/631r2)

Chair went through the policies and procedures. Chair went through the patent ruling from PatCom.

1.3 Approval of the last meeting minutes (05/515r1)

The minutes were approved with unanimous consent

1.4 Approval of Agenda (05/631r2)

The agenda is approved with unanimous consent

1.5 Review of last TGu session (05/487r0)

Chair went through the closing report for last TGu session

1. 6 Approval of Teleconference Minutes

1.6.1 First Teleconference minutes in June (05/614r0)

The minutes were approved by unanimous consent.

1.6.2 Second Teleconference minutes in June (05/625r0)

The minutes were approved by unanimous consent.

1.7 Liaison Issues

1.7.1 Incoming Liaison

None

1.7.2 Outgoing Liaison

IEEE802.11 review on the MOBOPTS internet draft (05/558r2)

Comment: The name of the TGk needs to be corrected.

Comment: On item 2, which information of the beacon are you referring to?
Stephen (Chair): This is about the issue that the beacon has a maximum length.
Comment: Beacon information is the same as those for the probe and response. But, since it is broadcasted, it needs to be kept short.
Comment: Some redundant information may not need to be placed in the broadcast beacon. They could be left to be probed.
Comment: There is sort of confusion about the beacon and probe/response. We should leave this open.
Comment: Suggest changing the sentence to "there is an interest in minimizing the length of the beacon management frames"

Several changed were made to the comment 2, and the document is revised to r3.

Motion: Move that IEEE802.11u approve the liaison document 11-05-0558-03-000u-liaison-to-ietf-from-ieee802-11-review-ietf-mobopts-draft-document and request the IEEE802.11 WG to approve and forward it to the IETF.

Mover: David Hunter
Second: Darwin Engwer

Result: 14-0-1 (for-against-abstain)

1.8 TGw related discussion

Motion: Move that TGw address the requirement of providing downgrade protection on beacon elements that TGu may require. This will require the modification of the RSNIE.

Discussion:

Comment: What is the downgrade protection?
Comment: Some information in the beacon will be checked in the 4-way handshake process, so that no one can change the beacon to result in a lower security algorithm being used.
Stephen: TGu may put hints in the beacon, and Jesse agreed that he may take this up in TGw as requirements.

Comment: Everyone agrees that it is a huge problem. Would like to see them spend more time to think it through and tackle the whole problem instead of a limited issue. Then, we could decide if it should be addressed in 11.

Stephen: Should we have two motions or amend the current motion?
Comment: Wondering if it is too earlier for us to say it is useful for TGu. It depends on what our proposals are. Beacon is used to advertise what the access network provides to access a SSPN before authentication. If that is to be verified at 4-way handshake, it may not provide any help to us, since the authentication process would provide us the information anyway.
Stephen: We have the opportunity to put the requirement in TGw's list. If we don't take it, we may not be able to do it later.
Comment: It is a more general problem to make beacon more secure. But, it may not be our responsibility to reaise the issue.

Stephen: Then, we can just produce a general motion, and it is not really from TGu; more from general membership instead.
Comment: It is for TGw to figure out if it is possible to do that.

Comment: Suggest taking out the second sentence

Comment: It says "may" require. Sounds like we are not sure.
Comment: Is the "downgrade" has any meaning to TGw?
Stephen: yes.
Comment: On the reflector, it is said that they cannot do it until 4-way handshake. For others, this is too late.
Comment: Is it for infrastructure AP or for any STA?
Comment: For all.
Comment: Example may be that an attacker gets a STA to use a weaker protection to connect to the correct AP. The original email is regarding a different issue.
Comment: It is that we anticipate that we want to identify a network at L2 before authentication.
Comment: The use of "downgrade" protection may let them carry on with they have in mind. We may want them to do more than that.

Comment: Should we just say "network ID protection"?
Stephen: That would suggest we have some solution. There are different ways to our problem. We may have different hints to do that.

Comment: Not sure if we can ask the other TG to do something. Should be "asking TGu chair to raise the motion in TGw".
Comments: It would be the same. The motion will be raised in TGw. We have a gentleman's agreement here to address the issue.

Amended motion:

Motion -: TGu requests that TGw address the requirement of providing protection on beacon elements.

Mover: Darwin Engwer
Second: Mike Moreton

Result: 15-0-2 (for-against-abstain)

1.9 Technical Editor Election

There is one volunteer for technical editor: Mike Moreton.

Mike is accepted with acclaimation as the TGu technical editor.

1.10 Down selection discussion (05/618r0) Stephen McCann

Stephen (Chair) went through the slides about proposed down selection procedures.

Comment: How does the no vote resolution work?
Stephen: Dcouments needs to be provided for that.
Comment: Is there a stage where the requirement is frozen and should not be changed?
Stephen: No.
Comment: If you can get people to accept it, it would be added as new requirement.
Comment: Reality is that the sooner you get it in, the easier to get it accepted.

Will come back to this discussion on Thursday.

1.11 Requirement discussion (05/279r15, 05/643r0)

Comment: Should the third class be "required – completed"?
Comment: "Required" is on the proposal. If it is completed, it doesn't need to be address by the proposal.

Comment: What does "d15" mean?
Comment: draft 15.
Stephen: A new document would be created after this meeting to contain all the approved requirements.

Comment: Not all requirements have a suggested class in this draft of requirements.

Comment: What time frame we are looking at for the requirement discussion?
Stephen: We are short of time, but don not need to rush for things. We can wait till next meeting.

1.11.1 Discussion of Requirement d15E1.

Comment: For the first 3 comments in the draft, those issues are above L2. It is for the operators to decide how to control service to the user. Are these suggesting that the information to be put to L2 to send to the user? How much overhead would that be?
Stephen: That is solution specific.
Comment: Each of the APs needs to be changed.
Comment: The general philosophy of the group is that the thing needs to be done before association.
Comment: Is that what you meant in the requirement?
Comment: Yes.

Comment: Is 802 OK to put lost of information into Layer2?
Stpehen: Not sure about the 802. But if the membership here agrees that it needs to be done, then it can be a valid requirement.
Comment: We are providing a transport mechanism. It is not setting the policy at all the APs everytime you change the beacon information.
Comment: Then, how would that made known to the AP?
Comment: That concern is for the solution, not requirement. And, we are not putting any function about L2 into this requirement.
Comment: Even for a small change, it requires touch of all the leave nodes of a network.
Comment: This is for the TGu compliant APs.

Comment: For requirement 1 and 3, why they should be separate? Requirement 3 is a subset of requirement 1.
Stephen: Because the 1st requirement was split into two at sometime back.
Comment: Agree that it may get too much into the detail.
Stephen: We can have that addressed in the motion. It can have a note saying that it is addressed in the previous requirement.

Comment: If we say it is required, it has to be included in the TGu draft.
Comment: The requirement is on the proposal, not the final amendment.
Stephen: The requirements are about what we want people to produce the proposal about.

A straw poll is raise about the procedure of the requirement discussion:

-Straw poll: Do you want to go through all the requirements first, or go to formal motion for each of the requirements in turn?

Discussion:
Comment: "Required" means that it needs to be dealt with in a proposal?
Stephen: Yes.
Comment: It is up to the membership to decide if a proposal meets the requirements.

Comment: Does this require 50% or 75% to pass?
Comment: Those are technical comments, requires 75% to pass.

Comment: Does the notes need to be associated with the requirements?
Stephen: No.
Comment: We may have a discussion later on whether notes should be included.

Result: 4-14 (Will go through each requirement and vote in turn)

- Motion on REQ d 15E1

Motion 1: Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".

- Define functionality by which the user is able to determine what oneline enrolment (also called online subscription) methods are supported by the network

Moved: Mike Moreton
Second: Sabine Demel

Comment: Would like to have that out of scope.
Some background of that requirement is prvodied by Mike Moreton.
Comment: What is the example of that enrolment?
Mike: UAM.
Comment: What layer could the enrolment be, any layer?
Comment: Yes.
Stephen: We are getting into what is the intended solution.

Comment: What a station does is implementation detail.
Comment: The station is identified by the MAC address.
Comment: If I have different user name on a device, does it mean tha the requirement would be different?
Comment: It doesn't matter for this case, since the network doesn't know you. It is for the AP to advertise information.

Suggest amendement: Change the "user" to "STA" in the text.

Comment: It is not clear whether it is user credential or machine.
Comment: It is just to allow the upper layer enrolment.

Comment: It is useful to keep user in the notes.

Comment: Who define the (enrolment) methods?
Stephen: It is out of scope. It is the solution.

Question called.

Result: 19-1-2 (for-against-abstain)

The meeting recessed for dinner.

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2. Tuesday Evening Session (18th July 2005, 1930 - 2130)

Meeting called to order at 19:30.

2.11 - Requirement discussion continuted (05/279r15, 05/643r1)

2.11.2 Discussion of REQ d15E2

Comment: When you say functionality, is it going beyond PHY and MAC? It is the entir system, and how it works?
Comment: This is an 11 problem. From hotspot to corporate network, the STA has no way to know that it is in in current system. Not sure how 11 can really solve this.
Comment: Agree.
Comment: Your home network AP has no knowledge of your corpoarate credential. It is OK. But in a hotspot, the AP may need to tell the STA that it can enroll and use the corporate service.
Comment: There is a different enrolment. It is the advertisement of services.
Comment: This is targeted at UMA
Comment: It is not about AP; it is the backend server.
Comment: This is the chance to get that into the standards.
Comment: It is a backend thing. SSID is not helping.
Comment: It is not helping in 3GPP case, since 3GPP is targeting at users already enroled. This is not the roaming scenario.
Comment: Whose credential are you going to give?
Comment: Now, in this case, you don't have any credential. In terms of UAM, it is the credit card.
Stephen: It is the bootstraping situation, and there is no credential.
Comment: It is helping to downsize the options/selections for a STA to make.
Comment: Hotspot can fool you. Not like cellular system, it is not secure.
Comment: In UAM, there is some site you can trust.
Comment: If you do something here, we can provide some similar solution. UAM depends on the browser, which is not desirable.

Motion 2 on REQ d15E2:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Define functionality for online user enrolment.

Mover: Mike Moreton
Second: Sudheer

Amendment:
Delete "user" from the text
Change status from "required" to "optional"

Result: 8-2-3 (for-against-abstain)

2.11.3 Discussion of REQ d15E3

Comment: It is included in the first requirement.
Comment: We don't think it needs to be a separate requirement. It is going too much into detail.
Comment: Agree.

Motion 3 on REQ d15E3:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Allow an indication of "OPEN" (anyone can use the local network without prior credentials) as one of the enrolment mechanisms.
Mover: Mike
Second: Stefano Faccin

Comment: Would like to remove "open"
Comment: Does open mean free of charge? It is not part of requirement 1.
Comment: There is legal implication in US for that.
Comment: The idea is that you see open network, you can safely connect.
Comment: If it is "free of charge", it is different from requirement 1. Could be that we have a function to specify how much we charge, with a value 0.
Comment: For charges, it should come later in TGu when we talk about solutions.
Commnet: Suggest "transactional enrolment".
Comment: If we have solution to allow the "free" to be signaled, it should be removed.

Result: 0-8-4 (for-against-abstain)

Stephen (chair): Would like to ask for advice on what to do with this requirement.

Commnet: Mark it as covered by requirement d15E1.
Comment: This is too detailed. It is not going to have in the requirement document.

2.11.4 Discussion of REQ d15E4

Comment: what is SSPN?
Comment: SSPN is the entity that gives you the credential in the roaming case. But this requirement is not about roaming.
Comment: Charges could be difficult to specify, e.g. per min, per sec, different currency, etc
Comment: It is difficult, but there can be solutions to do that.
Comment: Can that be provided at L2 and below? Can it be done within a few bits? Otherwise, it should not be in 11; should be in L3 instead.
Comment: Authentication may get user charged. Therefore, the info needs to be provided before the authentication.
Stephen (chair): It could be a hint only.
Comment: It may have requirement lead to security.
Comment: We have passed motion to ask TGw to protect beacons.
Comment: Beacons is difficult to protect.
Comment: This does not need to worry about replay attack.
Comment: This could be more than beacon. It could be charging at backend, e.g. although it advertises free, it may still charge.
Comment: Is the motion just for beacon or probe/response also?
Comment: It is just for beacon.

Comment: It could be also for probe and response.

Comment: It is covered in requireemnt 1. How much you charge could be provided by higher layer.

Motion 4 for REQ d15E4
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required - Optional".

-Functionality shall be provided by which APs can advertise (before connection) the charges that will be made for use of the network if a user enrolls with it.

Mover: Mike Moreton
Second: Stefano Faccin

Comment: The prices change dynamically. It may cause management problem.
Stephen (chair): That is transparently carried. This is to the soltuion.
Comment: Is this the charging for the enrolment or the connection?
Comment: This is for enrolment. To save time for network selection procedures.
Comment: Could left to the market to decide if a management solution or L3 solution is better.

Comment: If you think that has to be done at L3, then you need to go to IETF and standardize a solution..
Comment: In IEEE, only portions are defined, not the whole system. Do not know how it works.
Comment: It is limited by the scope.
Comment: If it is out of scope now, and later someone comes with a solution, would that be rejected?
Stephen (chair): It will be treated as an extra proposal.
Comment: So all required items needs to be solved before TGu is done.
Stephen (chair): We want them to be addressed in the proposals.
Comment: Anything else (other than required) is good to have?
Floor: Yes

Result: 7-4-4 (for-against-abstain)

Comment: Would like to know why it failed.
Comment: Don't know how it works. For a phone, it may not be able to make use of such information.
Comment: There are already ways to do that.

Stephen (chair): The general feeling is that it is out of scope. We don't see the reason for it.

2.11.5 Discussion of REQ d15N1

Comment: There are some IETF drafts using EAP proposed. In those solutions, the list could get long. Scalability is the key point of the requirement.
Comment: The second sentence should be removed.
Stephen (chair): We debate that in the motion discussion.

Motion 5 for REQ d15N1
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".

-Define functionality by which a STA can determine whether its subscription to an SSPN would allow it to access a particular 802.11AN before actually joining a BSS within that

802.11 AN. This mechanism shall take into account the possibility of hierarchical authentication arrangements including roaming agreements between the SSPN or Proxy Network and the 802.11 AN. The mechanism must be scalable.

Mover: Mike moreton
Second: Sudheer

Comment: About the hierarchical should be considered, that is not a requirement.
Comment: We don't have proxy network.The SSPN could be a proxy or the operator. We don't care.

Comment: The scalable part should be removed.
Comment: We may want people to justify why they think their proposal is scalable.
Comment: If it is limited by the MTU size, it is not scalable.
Comment: It is the mechanism. Suggest to change to function.
Comment: Any solution should be scalable.
Comment: “Unlimited number of SSPNs”
Comment: It is too far and dangerous.
Comment: Scalable may be a limited number of SSPN
Comment: “arbitrarily large”
Comment: We are just interested in the number of SSPNs.

Comment: Proposal must state how much SSPNs u can support, and voters decide (if they meet the scability requirement).
Comment: We are disucssing about evaluation criteria on the requirement. We should take out the sentence.
Comment: Other than number, usability is another concern.
Comment: How may bits you need to define a SSPN?
Comment: 20 char.
Comment: There could be ways to compress.
Comment: There could be a huge number of SSPNs.
Comment: In andrangi draft (IETF EAP group), they are dumping all information into it, and that is limited by the MTU size.

Comment: In 3GPP, they want to get the full list, not just ask for a certain one.
Comment: That is becaue they don't have the choice.
Comment: Would like to see the solutions, if it could be solved.
Comment: In 3GPP, it is only when the home realm is not routable, then it sends the full list. Not just dumping. It happens only when the first try fails. It is up to the hotspot operator to decide.

Result: 13-1-2 (for-againt-abstain)

2.11.6 Discussion for REQ d15N2

Comment: Station can choose what it wants,
Comment: This is selection of the credential not SSPN. The STA could select the correct SSPN, but still confused abt credentials
Comment: We have mulitple credentials within a SSPN, and we need choose the credentials.
Comment: In the certificate case, you don't know which certificate to use, e.g. in corpate, you belong to different certification class: marketing, finacing, etc.
Comment: At the moment, we (operators) don’t break down SSPN subscription into different pieces.
Comment: But, in current definiton, we don't prevent that.

Comment: Should create a separte requirement.

Comment: Selection of the credential from multiple ones is the user's decision.
Comment: Information must be provided for the user to do the selection.

Floor: The requirements are two.Should start the wording for the first one.

Suggested motion text:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to “Required”.

- The mechanism described in 0279r15 REQ d15N1 must allow a STA that has multiple SSPN subscriptions to select the correct security credentials when authenticating with a Local Network.

Comment: Is the credential just for security? Could it be for ID?

Comment: Still think it is not possible.
Comment: It is already on the market (multiple credentials).
Comment: We don't have a model for it.
Comment: Example could be that user has both WPA certificate and WPA password, it depends which one the network support to choose a certain method.
Comment: Don't see what kind of information the network needs to provide. It is a user decision.
Comment: It could be that use different credential would have different results.

Mover: Mike Moreton
Second: Stefano Faccin

Comment: Need to think what a network can offer, e.g. to do 802.1x, it needs a radius client. A small hotspot may not have that. The network needs to tell the STA.
Comment: The decision is a client behavior.
Comment: This is defining the STA procedures
Comment: This is not telling what STA to do, but providing a mechanism to allow STA to make the choice

Comment: This may devolved into a negoationation process with multiple message exchanges. It could be a overhead without understand what is here.

Comment: The local network to inform the STA of its capability. It has nothing to do with SSPN.It has to be different authentication method
Comment: It could be of the same authentication methods, but different credentials. Above 1x thing is just an example.

Comment: Suggest making the status “optional”.

- Motion: To change the reqirement status from "required" to "optional"

Mover: Mike Moreton
Second: Sabine Demel

Result: 3-7-4 (for-against-abstain)

Motion failed. So original motion is to be voted on:
Motion 6 on REQ15N2:

Accept the following text as a TGu requirement for proposals, and include it in the requirments document,
with requriemnt status set to "Required"
- The mechansim described in 0279r15 REQ15N1 must allow a STA that has multiple credentials with an SSPN to select the correct credentials when authenting wiht a Local Network.

Comment: The background of the scenario is not well described.

Result: 9-2-3 (for-against-abstain)
Motion passed.

Comment: We need to review the scenarios even the motion passes.
Comment: Seeing no reason for a SSPN issue mulitple credential for a user. Don't think there would be mulitple credential for a SIM.
Comment: But the user can buy multiple SIMs and put them into one STA.
Comment: Currently the handphones already support the multiple SIMs.
Comment: Then, it would be multiple billings from the operator. It has nothing to do with SSPN.
Comment: The STA still needs to obtain information to do the selection.
Comment: There are different credentials than what we are thinking today.

Action Point: To review scenarios document, and prepare proper explanation of the requirement.

The meeting recessed till Thur morning to discuss the second requriement derived from this topic.

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3. Thursday Morning Session: (21st July 2005, 0800 -- 0915) Joint TGu/TGv Session

Meeting call to order by the chair at 0800.
This is a joint session with TGv.

3.12 TGu topics review (05/654r0)

Regarding virtual AP:

Comment: We are trying to do a requirement at this stage. One of the requireemnt we are talking about is external network provids your access to the local network depending on your relationship with a different network. It raises the question how the local network advertise which roaming agreement you can use to gain access. It may turn out to be similar to the virtual AP case, where you need adverstise which network is present. Also, if you have multiple virtual netowrks, do you want ot limit your traffic to certain vertual LAN in interwokring? There is a great overlap between the two.
Pat (TGv chair): Yesterday, we agreed that should be an issue to be solved. 05/644r0 is the report. 05/642r0 lists the items to work on. One area is not here is how you tie a SSID to the VLAN at backend. We decide it is implementation detail.
Comment: We don't have that in our requirement saying it is vlan. We just have requirement saying that we need to deal with it. And, our requirement is not yet acceptd.
Pat: Any specific changes could be sent to TGv to review.
Stephen: Will take this away from them at the moment.

Comment: We havn't take the SSID in. We feel it may be more than SSID. Could be some IE in the beacon. SSID may not be enough since it cannot be too long. It could go beyond what we see here. If one group doing more than the other does, we can do it in one group
Comment: Did you discussed about how to orginze SSID to make it more usefual to identify network?
Stephen, Pat (chair): No.
Comment: That is solution.
Comment: You are trying to use this as solution to select network.
Stephen: It is one of the possible solutions.
Comment: Would not exclude that. If we need to differentiate 6 different networks, we cannot have six SSID in a beacon.
Pat (TGv chair): This opens an opportunity to change the famework, e.g. to replace SSID with operator ID.
Comment: Have problem to justify that.
Comment: The two should be linked together. Since we have two mechanisms (TGu and TGv), we don't want them to be different. Need to keep them inline, instead of being alternatives.
Pat: The fact is people do that today. How they realize virtual AP is that each vitrual AP has a different SSID, (or some similar trick). Now, we want to get it done with less impact to STA
Comment: What is the original requirement brought forward for the virtual AP? Is it a TGu requirement?
Stephen: We want to support different virtual networks, and virtual AP is identified as one of the possible solutions.
Comment: Are there other use cases of the virutal AP? If yes, we may need both.
Comment: There are policy, RSNIEs...
Pat: In real life. SSID is mapped to certain port, and securty policy would be completly different.
Stephen: In TGu we will take this away, and we know what u want to do in TGv.
Comment: Do you feel it is crucial to what you are doing in tgv? Or, just leave it to TGu.
Comment: It is crucial enough to be looked into it independently in TGv.

Comment: In that case, both group should look into it, and at later stage, we will see if we can combine them.
Stephen: Yes. It is too earlier to make decisions now.

As for the non-requirement:
Stepen: What is the status now? We are interested in service capability. What do you mean by servie, and what kind of detail is in?
Pat: It is brought up by Rohan in 05/1595r0. TGv is not interested in solving the issue.
Stephen: TGu may be interested.

3.13 E911 issue (05/14r1) Joe Kwak

Comment: Emergency support is a requirement for PSTN. There are two areas: call admission requirements, location requirements.

Comment: If you don't have a subscription to the network, how you make use of it? It is the enrolment requirement we discussed. You have a phone, and you want to use it for E911 in a network, but u don't have a subscpriton. That scenario is in TGu.
Pat (TGv chair): If I have cdma phone, and i went to Europe, it may not work. On a IP network, we don't have a call signaling protocol. How are you going to guarantee that it works?
Comment: It is a good idea for 11 to look into this. A few questions: 1st, it is not a blanket requireent for all wlan to supprt E911. It is only for to those supporting VoIP. And then, how you

know a network supports VoIP? Those issues need to be resolved. Then, we can see if we need admission control for this. Maybe a network supports VoIP can support that.e.g. at L3 and above.
Stephen: But you still have admission control for the access network.
Comment: That is the a issue to be resolvd in 11
Comment: In 11, the location relative localtion to the AP. It may not be that usefual for E911. Maybe GPS or something else shold be used.

Comment: In TGi, if you are part of a RSN, you have to set the encap bit. That issue needs to be solved.

Comment: With mulitple SSID, it could be achievable. But for the solution using web page, not every phone has a browser supported.
Comment: This is an adverstisement issue.
Stephen: We are looking into the network discovery issue in TGu.

Comment: In reality, it could be whatever device that is capable of doing IP basically. So, whether it is a phone or not it is another question. It is much more extensive than you have for VoIP. For E911 and locaitons, there are all kind of issues. Integrations in TGv is important. TGk just do the measurement.

Comment: If the VoIP is provided by a free network,, not a carrier, your operator needs to have the signaling plane pass it.
Pat: One way to do that is to have call servers. But that is too expensive.

Comment: TGk approach is relative. It needs an absolute location, a global position. From experience, it is not for companies to make decisions on regulation issues. As standards body, we should provide solutions in our scope of expertities. But, putting it in standards doesn't mean it would be used by every one. We need to provide solutions to what we perceive a regulation requires if it is within out scope, e.g. L2 and lower. If it is a wider problem, we need others to provide the solution together.
Comment: VoIP is a compelling application for 11. It moves 11 from close group user network to biger connected groups. 11 has a big opportunity here. We just provide hooks to allow 11 to do that is a good thing. Urge you to think abt it. 11 is at loose if it doesn't looking into this.
Comment: In 3GPP there is a Working Item for this. We do plan to adress this in WLAN. The missing part is that SIP client in UE. How the location information can be provided to theUE, and how to advertise the network support of VoIP is another problem.

Pat: Two main compeoent to this. The first one: admission control (service advertisement), seems not TGv interested. TGu could do that. Second one: Location, (TGk provides information) could be in TGv to integrate that.
Stephen: That is a perfectly natural split for TGu. We don't have issue for TGv for location. We need to see if it overlaps with our reqirements in TGu.
Comment: Why admission control is in TGu not TGv. It is management.
Stephen: It is also network advertisement and interworking. It falls into both of our scope. We can both do that.
Comment: Splitting the problem may not work well. The entire problem should be solve by one group. Prefer to have it in TGv. From company scheduling point of view, it is easier since people also attend TGk.
Pat: E911 is just one of the application in TGv that may use of location information.

Comment: For the location, in which case the location of the AP is not enough?
Comment: E.g. multi-story building case.
Comment: For E911, giving AP location is enough.
Comment: That is one possible approach.

Comment: The AP can just send location to its emergency application.
Comment: AP can reach 100 meter. It may not meet the requirement of E911.
Comment: For SIP client, it needs to send the information. AP is not in the control plane. UE needs to get the information.
Comment: This is the change. We can put AP into the control plane.
Comment: SIP is at L3, AP is not there.
Comment: The frames go pass AP. If AP is not involved in the process, you cannot get into l3.

Stephen: Agree that the E911 should stay in one place. Maybe it should in TGv for E911, but in TGu, we have problems to solve regarding the network advertisement. If this E911 is in TGv, we need to make sure they are not overlapping. The E911 admission contorl could be a subset requirement of the TGu requirement. we shold work closer.

Pat: Any document for requirement?
Stephen: 05/279r15. Should take this offline and debate this in TGu, and come back to you later. Will summarize all the admission control requirements and present to you. The feeling is that E911 would stay in TGv, but we need to be cautious about the admission control side. We may be given requirement from 802.21. The class 1 frame may be required. We will look into that in tgu, and maybe there is similarity for the E911 requirement here. Split at this moment is not necessary.

Comment: At some level we need to be involved, since this involves interworking. The higher level requirement maybe comes from TGu. TGv is the place to solve the problem.
Stephen: We can debate that in TGu at LA.

3.14 Summary of TGu (05/652r1) Stephen McCann

Stephen (chair) gave introduction of the TGu scope and objectives.

3.15 Summary of TGv, Pat Calhoun

Pat gave a brief overview of the TGv: It is meant to solve the management problems for large network deployment. It is to manage, trouble shoot, client control. Another area is MIB for access points.

Comment: E911 is not in the two categories.
Comment: It is in scope in the PAR.
Pat: We have a PAR that allows anything into it.
Comment: It is not in the scope of the management. Need to be careful to take it on
Comment: It is useful for TGv to understand the original objection of the group to complement TGk. E911, is another feature what TGk does. It is in scope, but should be careful not to develop something in contrary to what is in 11.
Comment: Most of the PARs allow anything, but the higher level requirement of this issue is still from TGu. We are just making sure that the requirement can be met by the work done in TGv.

Comment: In 05/642 from Cairns meeting, it seems that admission control can be enhanced to fit into the rest of requireemnts.
Comment: It is more like class management issues. At the end of day, if TGv wants to do it, it is fine.

Pat: Would like to raise a straw poll:
- Which TG do you believe should inlcude in its work goals the requireemts derived from 05/014r1 (E911 supports)?

Comment: Had a motion to make a decidsion in TGv... It was deferred to after the joint session. Should give some time to look into it.
Comment: It should be divided. There are two issues.
Pat: May need to decide in Nov, after we considered.

Tgv: 6
TGu: 1
Revisit in Nov: 24

Pat: Would have aother hour in Nov for joint TGu/TGv session to discuss this.

Session recessed to reconvene in another room

4. Thursday Morning Session: (21st July 2005, 0920 -- 1000)

4.16 802.21 draft review

The chair invites everyone to look into .21 draft proposal.

Comment: One of the issue is some overlapping, e.g. network selection. Suggestion is to have a clear distinction of what we are doing, and what we get from .21.
Sephen: Did a presented in .21. The anawer is that they are producing a requirement document that would be pass to 11 in September meeting. Question is if these requirements are not addressed in any of the proposals, what should we do?
Comment: If 11 does not do the adaptation, 11 just cannot use the .21 mechanism. It is for 11 to decide if to interwork with .21
Comment: Depends on if it is easy or diff to adopt. .21 may need to provide value to do that.

4.17 Discussion of issues raised in TGv joint session

Comment: Regarding E911, should we have some requirement or statement for that?
Comment: It is a requirement from the interworking. TGv doesn't have that requirement. We can keep that requirement and we need to make sure what they do is enough to support our requirement.
Stephen: Too much detail for that. Do we need any generic requirement? E.g. admission control. We don't break what TGv is doing.
Comment: It might be premature to decide. It depends on what is required. Now, it is just a fear that a regulation may drop.
Comment: There is a FCC requireemnt on voip...

Action Point: This is to be an agenda item in Sept.

Action Point: The virtual AP discussion is also an agenda item in Sept.

4.11 - Requirement discussion continuted (05/279r15, 05/643r1)

4.11.7 Continue discussion of new requirements derived from REQ d15N2

Comment: The other motion is the multple SSPNs. Who think that still needs to be covered?
Comment: That is a genuine requireemnt.

Stephen: If we have a serious complain about REQ d15N2, we will address it later at next meeting.

4.11.8 Requirement discussion on REQ d15N3

Motion for REQ d15N3:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to “Required”.
-Define functionality to support authentication with multiple SSPNs through a single AP.

Comment: Does a single STA at any point of time can authenticate multiple SSPNs? Text should be changed.Main thing is that you don't want to limit the authentication.
Comment: How does it diff from N1?
Comment: Isn’t N1 also talking about that?

Comment: People were addressing the virtual ap that point of time. It is targeting to provide a better solution.
Stpehen: Does N1 preclude that.
Comment: Add “using a singale SSID”
Comment: it may limit possible solution
Comment: It is the requirement that the infrastructure can be shared between different operators.
Comment: But signle SSID is restrictive.
Comment: Can we say that it is already covered in TGv?
Stephen: May not need to rush for that conclusion yet.
Comment: what TGv is saying is that we should not do this..

Stephen: Suggest changing the status to "completed"

Comment: If different authentication for different SSPN, we are saying that forced to use the same one.
Comment: You can have different authentication within a BSS.
Comment: Are we placing any requirement on the AP?

Stephen: Are we talking about two reqirements here?
Comment: Depends on if people is happy about that.
Comment: It it related to user plane stuff. May be treated at a later stage.

5. Thursday Morning Session: (21st July 2005, 1020 – 12:30)

5.11 - Requirement discussion continuted (05/279r15, 05/643r1)

5.11.8 – Continue discussion of REQ d15N3

Comment: Leave the motion and reconsider it during sept.
Comment: Do we want to revert back to the original motion?
Floor: Yes.

Motion 7 for REQ d15N3

Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Define functionality to support authentication with multiple SSPNs through a single AP.

Mover: Stefano Faccin
Second: Sabine Demel

Result: 6-0-2

5.11.9 Discussion for REQ d15N4

Suggested Motion text:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required - optional".
-Define functionality by which a STA can determine which interworking services are available before joining a BSS.

> Comment: This covers the case for 3GPP interworking of which level of interwork. Would like to have to "required"
> Comment: Does it also related to TGv discussion earlier?
> Stephen: Yes.

Motion amended.
Motion 8 on REQ d15N4
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Define functionality by which a STA can determine which interworking services are available before joining a BSS.

> Comment: How does it differ from d15E1?
> Comment: d15E1 is for online enrolment purpose, this is for network selection.
> Comment: Maybe the solutions are the same, but the purposes are different.

Mover: Sabine Demel
Second: Stefano Faccin

Result: 7-0-1

5.11.10 Discussion for REQ d15N5

Motion 9 on REQ d15N5:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required - Optional".
-Functionality shall be provided by which APs can advertise (before connection) the charges that will be made for use of the network if connection is authorized based on an SSPN subscription.

> Comment: What is d15E4 result?
> Stephen: Not accepted.
> Comment: The prcing is quite dynamic. Also associated with the service you offer.
> Stephen: It is to advertise the charges. It is not about what it is. It is just a container.
> Comment: The indication may not be useful/accurate. May be just the QoS should to be advertised.

Comment: If it is optional, it will open the opportunity that someone can bring you a good solution.
Comment: QoS is even wrose, since the information is realtime.
Question called.

Mover: Mike Moreton
Second: Stefano Faccin
Result: 5-0-3

5.11.11 Discussion for REQ d15N6

Motion 10 REQ d15N6:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required – out of scope".
-Functionality shall be provided by which during the connection process a STA can be informed of the actual charges to be applied to this session.

Comment: It implies the same thing to the previous one.
Comment: This is about after connecting...
Comment: Is this independent of the previous or it is after ?
Comment: It is after.
Comment: It is out of scope. Could be done at L3. Not in MAC. There is no time constrain.
Comment: From system perspective, are we saying that MAC advertises and then L3 says I lied?
Comment: It is not in the scope for us to define the second step.

Comment: The 3GPP may feel like it, but IEEE is not able to do it.
Comment: We create tools, but not telling ppl how to use it.

Mover: Mike Moreton
Second: Stefano Faccin

Comment: Clearify that, if u vote yes, it would be removed from the requirement document

Result: 9-0-0

5.11.12 Discussion of REQ d15N7

Motion 11 on REQ d15N7:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required – complete".
-It should be possible to inform a STA about unbroadcasted SSIDs without causing the STA to probe for each preferred SSID.

Comment: This is just an implemeantaion of N1.
Stephen: it is set out of scope.
Comment: it should be complete.

Mover: Andre Kojukhov
Second: Mike Moreton

Result: 5-0-3

5.11.13 Discussion of REQ d15P1

Motion on REQ d15P1:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required – Out of Scope".
-Define STA behavior when it is in possession of suitable credentials to use an 802.11 AN, but a candidate AP, while claiming to be part of that 802.11 AN, does not have security enabled.

Comment: From TGw, it is out of scope for 11.
Comment: Is this falling into TGr?
Comment: Not, since they are not choosing which AP to go to. It is a policy thing.
Comment; Would the STA associate with AP if the profile configured doesn't fit?
Comment: Depends on what is in the profile, and it is still a policy issue.
Comment: how does the STA know that the candidate AP doesn't have that?
Comment: From the beacon.

Mover: Mike Moreton
Second: Andre Kojukhov

Motion amended:
Motion 12 on REQ d15P1:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required – Out of Scope".
-Define STA behavior when it is in possession of suitable credentials to use an 802.11 AN, but a candidate AP that claims to be part of that 802.11 AN does not have security enabled.

Comment: What is the result of the discussion from TGw?
Comment: From Henry, the client is not allowed to do this, but it is a client policy issue.

Result: 4-0-4.

5.11.14 Discussion of REQ d15P2

Motion 13 on REQ d15P2:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Define functionality to prevent hijack of MAC addresses.

Comment: Is this a requirement in general for all the 11 work? Why should we work on it? Should be the security group doing it
Stephen: Which group?
Comment: Not sure. But we don't have enough expertise.
Stephen: It was presented in TGw.The next issue will be done in TGu. They feel it is not a securty issue. It is a protection issue. It may also apply to this.
Comment: It is more important to us. In corporate network, everyone connects to ethernet. But for hotspot, not true. So, not every uesr is protected.It is more improtant to us.
Comment: Just not sure about the expreties
Comment: no other group is currently working on it.
Comment: Why it is not in 11i?
Comment: No. Hijacking is aboout diff AP. And the user is a legal user. 11i don't check MAC address. It may turn out to be out of scope for us.
Comment: TGi authenticates user, but don't provide authentication of the ownership of hte MAC addr.

Mover: Stefano Faccin
Second: Mike Moreton
Result: 6-0-3

5.11.15 Discussion of REQ d15P3

Motion 14 on REQ d15P3:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Provide functionality for MAC Address Anonymity

Comment: Should update the notes..
Mike Moreton: Will update all the notes.

Action Point: Mile Moreton will update all the notes for the requirements in the new produced requirement draft for the approved requirements.

Comment: Is it similar to the TMSI of cellular network?
Comment: Similar idea, but solution to be discussed.

Mover: Sefano Faccin
Second: Mike Moreton

Result: 5-0-4

5.11.16 Discussion of REQ d15P4

Motion 15 on REQ d15P4:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required – Out of Scope".
-Provide functionality so that illegal APs can not masquerade as real ones.

Comment: Is this the same thing in the TGw discussion for beacon protection?
Stephen: Yes.
Comment: Is this a higher level policy issue? So it is out of scope?
Comment: TGw is to protect mangement frames. So, this should be treated by them, if it is in scope of 11.

Mover: Mike Moreton
Second: Charlse Wright

Result: 4-0-5

5.11.17 Discussion of REQ d15P5

Motion 16 on REQ d15P5:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required - Optional".
-Define the way in which the mechanism as defined in REQ d15N1 can be secured, so that an AN can not pretend to provide access to a SSPN.

Comment: Seems difficult to do.

Stephen: Stop AN to pretend that it provides certain services. Did not say when and how.
Comment: The actual authentication will allow that.
Comment: Two issues: AN is trying to provide access to a SSPN even it is not allowed to do so; another is the AP is trying to claim it provides access to a SSPN. Here is trying to address the first one. But not sure how that is done before authentication/association.

Comment: From TGw, it is more of out of scope.
Comment: Good to keep it optional,this is asking the proposal to show how that could be done.
Stephen: We can have a note to say "to discuss with TGw".

Mover: Sabine Demel
Second: Andre Kojukhov

Result: 3-0-5

Action Point: To add note that it needs to be discussed with TGw.

5.11.18 Discussion of REQ d15A1

Motion on REQ d15A1:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Not Required – Optional".
-A STA shall be able to authenticate with different SSPNs simultaneously, in order to gain simultaneous access to multiple Corresponding Networks.

Comment: Was there the intension to allow STA to have mulitple connection to connect different SSPN? 1x doesn't allow that.
Stephen: Doesn't matter, since we are not assumsing 1x. It is solution dependent..
Comment: We are looking at system, but some part is out of scope?
Comment: Yes

Comment: Why we want to be optional? Seems in scope.
Comment: Why it has to be simultaneous?
Comment: Mulitple connection to different networks, e.g. multihoming.
Comment: What is DN?
Comment: It is where the TOE is. It is someone you are trying to connect to.
Comment: Could be the same TOE for a multihoming case.

Comment: There are security concerns. It may expose one network to another network by (letting the STA) being a middle man.
Comment: It doesn't matter if it is simultaneously connected or not. The security issue is there anyway. . It was debated in 3GPP before.
Comment: Why trying to do that?
Comment: It is to get different servcie through the same AP connection.

Comment: Suggeest to change the status to "required"

Motion 17 on REQ d15A1:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-A STA shall be able to authenticate with different SSPNs simultaneously, in order to gain simultaneous access to multiple Destination Networks.

Mover: Stefano Faccin
Second: Charlse Wright

Result: 7-0-1

5.11.19 Discussion of REQ d15S1

Suggested motion text:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to “Required”.
-Define functionality by which Authorization Information can be transferred from the SSPN to the Local Network.

> Comment: The group is deal with MAC and PHY. This may be out of scope.
> Comment: It is from Radius to the MAC/PHY.
> Comment: Then it should be “from local network to the AP”, not “SSPN to the local network”, which is L3.

Mover: Sabine Demel
Second: Andre Kojukhov

> Comment: This is out of scope of 11.
> Comment: 1x only talks abt authentication, not authorisation and charging.
> Comment: That should be done in IETF.
> Comment: We still have some action to do in .11
> Comment: May some one suggest to propose LS.

Amendment to the motion: change the status from “required” to “out of scope”

> Comment: 802 only defines authentication not the other info.
> Comment: In current system you can transfer IP filters, e.g. in 11e.
> Comment: How do we tranfer the information that “this is my gold user, you should give it higher throughput”?
> Comment: That is to the radius. And from there down to L2 is implementation issue.
> Comment: That is dangerous.
> Comment: Disagree to that. It is possible to define internal inteface to do what is here.
> Comment: Then it is the information, not the functionality, to be defined.
> Comment: We are defining the interface, not the transport.
> Comment: Agree to sugget the “information” in the motion. How to get there shold not be mentioned.

Vote on the Amendment to the motion text

Result: 1-4-4.

> Back to the orginal motion:
>
> Amendment proposed to the motion text:
> "can be provided to the MAC"
>
> Comment: The parameters could be different from the orignal information.
> Comment: That is why “originated” is used.

Comment: Should keep the requirement open. Need to send LS to IETF.
Comment: We should, since IETF is working on that.
Comment: Could draft out the Liaison Letter in teleconf.
Comment: Are we doing more than just defining the information, e.g. defining the interface, change SAP?
Comment: Add "and associated functionality"

Motion 18 on REQ d15S1:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Define the Authorization Information (originated from the SSPN) that shall be provided to the MAC and associated functionality.

Mover: Sabine Demel
Second: Andre Kojukhov

Result: 5-0-3

5.11.20 Discussion on REQ d15S2

Suggested motion text:
Accept the following text as a TGu requirement for proposals, and include it in the requirements document, with requirement status set to "Required".
-Define functionality by which admission control and QoS mapping decisions made locally in the 802.11 AN can be influenced by the contents of the Authorization Information.

Comment: This is not covered in the first requirement, but it should be. It is based on the same reasoning.
Comment: Is this functionality?
Comment: Yes. It is in the text.
Comment: It is not the same as previous one. This is about we want to define the rules that the QoS will be influenced.
Comment: We don't want to define the rules. It is adding functionality in the MAC. It asks the MAC to do some specifc functionalty.
Comment: It is not in the scope of 11.
Comment: The interface for accepting that information is in scope.
Comment: Are we trying to tell the AP how to process that information? Isn't that algorithm?
Comment: It is not. Admission control is defined in 11e. It did not mention about the external policy influence. The decision of the admission is algorithm, but this is about a functionality to allow external influence.
Comment: It says "can". It is not a requirement.
Comment: It is the lcoal network that tells the AN to provide what QoS.

Stephen: San we change the text to clarify that?
Comment: we provide that information to the MAC. How the MAC makes use of it is out of scope.
Comment: The information given is more than "yes" or "no".

Comment: Can we ask the admission mechaism to honour this information?
Comment: Is that a must?
Comment: Requireemnts are just guidelines.

Comment: the Authorisation Information (AI) doesn't mean the QoS info. Is it implicitly included?
Comment: We defined AI in terms definition document. Maybe we can change it to be clearer.

Stephen: leave the discussion for now due to time limitation.

All the approved requirements will be saved in 05/653r2 and further debates to be taken in mailing list.

Mike will update all the notes according to the discussion, and place it in a separate document.

5.18 Teleconf schedule

Two teleconferences scheduled:
11th August 10 ET.
24th Aug: 10 ET

5.19 Timeline update

Timeline updated to 05/049r3.

Session adjoured till next meeting in Septermeber, LA.

Report of TGv – July 2005

DATE: July 2005				
Author(s)				
Name	**Company**	**Address**	**Phone**	**email**
Pat R. Calhoun	Cisco Systems, Inc	170 West Tasman Dr., San Jose, CA 95134	408 853 5269	pcalhoun@cisco.com

Abstract

Report of the meeting of TGv at the July 2005 session.

Goals for July 2005

- **Individual requirements presentations**
- **Assign any remaining requirements to owners**
- **All non-assigned or non-agreed upon requirements fall in the ‘b’ category**
- **Collect proposed text for requirements document**

Submissions

- **Submissions**
  - 11-05/0642r1 – TGv Objectives – Emily H. Qi
  - 11-05/0270r2 – Virtual AP Requirements – Pat Calhoun
  - 11-05/0014r1 – E911 Support – Joe Kwak
  - 11-05/0732r2 – Client Management Protocol – Tim Olson
  - 11-05/0500r1 – Control Approaches – Joe Kwak

Proposed Agenda

- **Review IEEE patent policy**
- **Approve agenda**
- **Group status update**
- **Approve minutes from last meeting**
- **Attendance Update**
- **Call for presentations**

  Tuesday:
  - 11-05/0270r2 – Calhoun (Virtual APs)
  - 11-05/0014r1 – Kwak (E911/VoIP)
  - 11-05/0732r0 – Olson (Client Management Protocol)

  Thursday:
  - 11-05/0500r1 – Kwak (Control Approaches)
  - 11-05/0740r0 – Anantha (Site Specific RF Management) - Delayed
  - 11-05/xxxxr0 – Kwak (Advanced Antennas) - Delayed

Proposed Agenda (cont.)

- **Objectives discussion (11-05/0642r1)**
- **Other technical submissions**
- **Next steps**
- **Motions for working group**
- **Adjourn**

Motion to approve TGv May 2005 minutes

- **Moved: to approve meeting minutes 05/0459r2**
- **Mover: Dick Eckard**
- **Seconder: Tim Olson**
- **Passes: unanimous**

Motion to adopt “objectives” document

- **Moved: to adopt document 05/0642r0 as “TGv Objectives” working document. This would be the editor’s notes, listing the targeted objectives the end protocol would address.**
- **Mover: Emily Qi**
- **Seconder: Bob Miller**
- **Passes: 1/14/7**

Attendance Recording -802.11

- **A sign-in sheet will be located at the Registration desk**
- **Each member must sign-in “once” (1) per day, between the hours of 0800 and 1730 local time**
- **Participants must “sign” their name in the appropriate place and state % of attendance that day in 802.11**
- **Attendance will be checked against other 802 groups.**
- **Those found abusing the honor system will loose ALL credit for that day.**
- **These sheets are provided daily. If you don’t sign up during the “regular sign-in” hours, you will NOT be given credit for that day.**

IEEE-SA Standards Board Bylaws on Patents in Standards

6. Patents

IEEE standards may include the known use of essential patents and patent applications provided the IEEE receives assurance from the patent holder or applicant with respect to patents whose infringement is, or in the case of patent applications, potential future infringement the applicant asserts will be, unavoidable in a compliant implementation of either mandatory or optional portions of the standard [essential patents]. This assurance shall be provided without coercion and prior to approval of the standard (or reaffirmation when a patent or patent application 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 either mandatory or optional portions of the proposed IEEE standard against any person or entity complying with the standard; or

b) A statement that a license for such implementation 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.

Inappropriate Topics for IEEE WG Meetings

- **Don't discuss the validity/essentiality of patents/patent claims**
- **Don't discuss the cost of specific patent use**
- **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-SA Standards Board Patent Committee Administrator at patcom@ieee.org or visit http://standards.ieee.org/board/pat/index.html

This slide set is available at http://standards.ieee.org/board/pat/pat-slideset.ppt

Straw poll #1

- **Do we believe that TGv should define a framework to allow a STA to extract and provide information from another STA, which could be useful for load balancing, pushing configuration, retrieving statistics, etc. TGv would have to identify the specific managed elements that are of interest.**
- **This would allow for client management without any reliance on an SNMP client or agent on the STA**
- **Yes: 20**
- **No: 5**

Straw poll #2

- **Which TG do you believe should include in its work goals the requirements derived from 05/0014r1 (E911 support)?**

- **TGv: 6**
- **TGu: 1**
- **Revisit in November: 24**

Motion to Adjourn

- **Moved: to adjourn**
- **Mover: Kevin Hayes**
- **Seconder: Bob Miller**
- **Passes: unanimous**

TGv Proposed Timeline

- **The following time table will be used by TGv**
  - Internal Call for Substantive text: September 05 (due Nov 05)
    - In November we expect normative text to be contributed and the amendment editorial task will begin
  - TG Ad-Hoc Draft Internal Review: November 06
    - This will be an internal review, with an additional meeting (January) to address internal comments
  - First WG Letter Ballot: March 07

Work completed

- **First objectives document created (11-05/0642r1)**
- **Work List updated (11-05/0796r0)**
- **Reviewed four contributions**
  - The following were found to be in scope:
    - 11-05/0270r2 – Virtual AP Requirements – Pat Calhoun
    - 11-05/0014r1 – E911 Support – Joe Kwak
    - 11-05/0732r2 – Client Management Protocol – Tim Olson
  - The following will be discussed further in September:
    - 11-05/0500r1 – Control Approaches – Joe Kwak

Attendance

- **Attendance: Tuesday AM: 26, PM: 34**
  Thursday: 29

Output Documents

- **11-05/0796r0 – TGV Work List**
- **11-05/0642r1 – TGv Objectives**
- **11-05/0644r0 – TGv July 2005 meeting report (this document)**
- **11-05/0725r0 – TGv July 2005 meeting minutes**

Goals for September

- **All new presentations will include specific requirements text, which follows the format in 05/0642r0**
- **Present Load Balancing (05/0629r0) and Rate Control (05/0630r0)**
- **Identify requirements text for 05/0732r0**
- **Presentations listed under ‘Pending Work Items’ in 05/0224r5**

Adjourn

- **Meeting adjourned at 12:15 on July 21, 2005**

IEEE P802.11
Wireless LANs

Protected Management Frames Plenary Minutes for July 2005

Date: 2005-07-18

Author(s):

Name	Company	Address	Phone	email
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Abstract

Minutes of the 802.11 TGw Task Group meeting held during the IEEE 802 July 2005 Plenary Session in San Francisco, CA from July 17th – 22nd, 2005.

Monday, July 18, 2005

Call to Order

Meeting called to order on Monday, July 18, 2005 by Jesse Walker at 4:00 pm PST.
Chair: Jesse Walker
Secretary: Sandy Turner

Chair: Go to the IEEE concierge's desk and sign in once a day. The chair reviewed slides on the following:

- Membership & Anti-Trust
- IEEE-SA Standards Board Bylaws on Patents in Standards
- Inappropriate Topics for IEEE WG Meetings
- Copyright
- Agenda (below)

TGw Ad Hoc Agenda, Monday, July 18, 2005, 10:30-11:00			
1	Call to Order	1	10:30
2	Review IEEE 802 & 802.11 Rules and Procedures	5	10:31
3	Chair's Status and Goals for the Ad Hoc Meeting	1	10:36
4	Approve or Modify Agenda	5	10:37
5	Requirements Presentations	18	10:42
6	Adjourn Ad Hoc Meeting	0	11:00
TGw Agenda, Monday, July 18, 2005, 16:00-18:00			
1	Call to Order	1	16:00
2	Review IEEE 802 & 802.11 Rules and Procedures	5	16:01
3	Chair's Status and Goals for the Session	1	16:06
4	Approve or Modify Agenda	10	16:07
5	Requirements Presentations and Discussion	45	16:17
6	Selection Criteria Presentations and Discussion	58	17:02
7	Recess until 16:00 Tuesday	0	18:00

TGw Agenda, Tuesday, July 19, 2005, 16:00-18:00			
8	Call to Order	1	16:00
9	Requirements presentations and discussion	59	16:01
10	Selection criteria presentations and discussion	60	17:00
11	Recess until 19:30, Tuesday	0	18:00
TGw Agenda, Tuesday, July 19, 19:30-21:30			
12	Call to Order	1	19:30
13	Discuss Requirements and Selection Criteria	59	19:31
14	Hear Presentations	60	20:30
15	Recess until 16:00 Thursday	0	18:00
TGw Agenda, Thursday, July 21, 2005, 16:00-18:00			
16	Call to Order	1	16:00
17	Discuss Requirements and Selection Criteria	49	16:01
18	Vote to Adopt Requirements	30	16:50
19	Vote to Adopt Selection Criteria	30	17:20
20	Issue Call for Proposals	5	17:50
21	Vote to Authorize Conference Calls	5	17:55
22	Adjourn	0	18:00

Chair: Any objections to adopting the agenda before you?

Comment: I'd like to make a presentation.

Chair: We can add that to the schedule. Are there any modifications to the agenda?

None.

Chair: Are there any objections to approving the agenda?

None:

Chair: Hearing none, the agenda is approved.

Presentations
Chair: Chair schedules Phil MacKenzie for Tuesday, July 19 for 60 minutes to present "PSA" doc 05/651r0.

Requirements for Management Frame Protection 11-05-0521-03 Jon Edney et. Al.
Jon Edney (JE) reviewed the changes since the last meeting, which included two teleconference calls.

JE: The comments from the first conference call were clarifications (e.g. restriction on sending an association when already associated) and the addition of time as a requirement (e.g. protecting against a message being delayed). These are baseline requirements – when we issue the Call for Proposals, all proposals must meet these requirements.

- "Req 110: Confidentiality Protection" – If there is a mixed environment (stations that do not support 11w), they should continue to operate. If there is a negotiation of security protection, that negotiation should be protected. There's been a lot of discussion if it's mandatory or not. This is mandatory. Some don't agree on this.

Chair: We should have a vote on this.

JE: We should have an alterative to desirable included in the proposal.

Chair: Some have proposals with only confidentiality. This needs to have some discussion.

- "Req 150: Unicast-Broadcast-Multicast Protection" – This is a strong requirement. Jesse did a presentation on the difficulty of protecting broadcasts. This is another one for discussion.

Comment: This is a particularly hard problem when you broadcast from a station. There was some work at the tail end of TGi for some requirements for TGe. TGe did end up removing the ability for a STA to broadcast to another STA. Do we want to have multicast and broadcast from an AP or are we doing it STA to STA?

Comment: Another issue – in TGi, it uses a group key to protect the broadcast. That adds another dimension.

Comment: It's not necessary for the same proposal to provide for unicast and multicast. You could have different schemes.

Comment: You shouldn't have Management Frames from the STA.

Comment: TGk did at one point.

Comment: If someone introduces a new Management Frame after this, that group has to secure it. We can't support all future Management Frames.

Comment: How is this body interpreting the text of 150 in terms of broadcasts? Even if you broadcast from the AP to all the STAs, is the group key protection sufficient?

Comment: What I've heard is no.
Chair: We need to clarify which Management Frames we're talking about. We know how to protect the Management Frames we have. The sorts of frames Dorothy is discussing are theoretical.

Comment: They're not in TGe. I haven't checked TGk lately.

Comment: There are broadcast Action Frames in TGk.

Comment: We should check.

Chair: ACTION ITEM; Check with TGk for broadcast Action Frames.

Comment: The phrase "Management Frames" is vague. We should distinguish between a subset and all Management Frames (e.g. capital M).

Comment: Is there anything in the current standard that prevents broadcast Management Frames from a station?

Comment: The STA can not send broadcasts.

Chair: Dorothy was noting the Direct Link Protocol (DLP).

Comment: No, DLP we did cover. They took it out.

Comment: In skimming through TGk (Section 11.7), it says a STA shall broadcast a request, but I took it to be an AP.

JE: It can't be an AP - there are no mechanisms. An Action Frame is a single event.

Comment: In skimming through the frames, all requests say they can broadcast. The language is only to a STA. It doesn't clarify if it's also the AP or both.

Comment: There is a table at the end tat is more specific on frames.

- "Req 160: Selected Deployment of categories of Management Frames Protection"

Comment: That looks like a typo. The point was it is possible that in some deployments, it is possible to only protect a couple Management Frames instead of all the Action Frames. We're working with all the Management Frames we know of today, not in the future. As they come along, a new group will study the new Management Frames and incorporate them or something new is done.

Chair: This was a requirement trying to address extensibility. Not all Management Frames are defined. With different versions of functions in fields, some protect some Management Frames and not others, which can be protected in a given deployment.

Comment: This would be part of a negotiation?

Chair: Yes.

JE: If everyone understands this, people reading this without the explanation will have a hard time. We need to reword this.

Chair: We clearly need to wordsmith this.

Comment: If the intent is all Management Frames we know of, we could have one category for those and the future is another category. Or partition level could be high, medium and low.

Chair: I don't know. It's up to the group to decide. To allow different versions to interoperate, if that's the only goal, what you described would be the right thing to do.

Comment: TGw version 1.

Chair: Version 1, Version 2. We want it as simple as possible. We can imagine different administrative domains where you want to turn this one on and this one off. We don't want to go there – it's unmanageable. Historically, people are unable to set fine level access controls.

Comment: Yeah, you could see one category of Action Frames with confidentiality and one without confidentiality.

Comment: Or all Action Frames or not.

Comment: You're talking about two different dimensions - protect unicast and broadcast with different mechanisms. They are separate and orthogonal dimensions. You only protected a subset – for instance not protecting beacons. Think of another Management Frame.

Comment: Action Frames.

Comment: If someone comes up with solutions to protect some Management Frames we're not protecting and interoperate with TGw, versioning makes sense.

Comment: Req 160 says some explicit negotiation of the 2nd dimension. What coverage of these specific management types? It's not sufficient to just say if the privacy bit is on you're OK. I'm trying to say it back and white so you know which messages and how they're protected.

JE: We need to enumerate the categories.

Comment: That's fair.

JE: There is some ad hoc work to do

Chair: I'm making a list.

- "Req 170: Protection only after Key establishment" – Some people see this as the "do not protect Class 1 clause". It excludes beacons and probes.

- "Req 180: Regulatory Requirements"

Comment: I interpret this as not all hard requirements - for this one in particular. Some of the 11i hierarchies are not going through FIPS.

Chair: Maybe we should reword this one to use approved algorithms.

Comment: You have to be a little careful. I forget which Requirement number, but it said you shall use 11i. I'm thinking of TKIP and MD5. We don't want to exclude that. There's just not TKIP. There's the .1X using HMAC and MD5.

Chair: MD5 algorithms for TKIP we know are not FIPSable. FIPS would say something about the key derivations.

Comment: The solution from the standards shall be capable. Not every solution from the standard or all implementations are FIPS certifiable. TKIP isn't. AES is.

Chair: As long as it allows some profiles to be FIPS certifiable?

Comment: These requirements are mandatory. It's not like an RPF from the government. If it's good enough, it's good enough.

- "Req 190: Delay Protection" – This one was added tentatively, subject to discussion. This implies they can detect such attacks. My interpretation is that you can detect when a message is delayed in transit and recover.

Comment: We can't detect, but we do have mechanisms to protect.

Comment: You can detect from the power save.

Chair: If you go asleep, but the AP doesn't know about it for a while. Say there is a Man-in-the-middle. So the AP continues to send messages for a while and caches them and finally delivers your message as you're going into power save mode. Later the AP sends a message to wake you up. It realizes there are messages accumulated and the wake up message. The observation we made is if there is some ability to resync counters, we could detect this sort of thing. When you resync, any of the old cached messages would be dropped.

Comment: I'm trying to understand how the counters are out of sync. If you're in power save mode, you're not receiving any packets?

Chair: You went into power save and the AP continues to send packets. The AP caches them and keeps them in sequence. It finally sends messages to the AP. That's the attack. We wanted a way to resync counters coming out of power save mode so we'd get the right counter values.

JE: This raises another interesting category. Typically a STA sends a null frame with power save mode, so we'd get the right counter values.

Comment: That's a different attack.

Chair: It's the opposite attack we're worried about. Should we protect that message too?

JE: The null data frame is being used like a Management Frame. I'm trying to understand what damage would be done by the attack?

Chair: It's useful if the application layer does not synchronize for state changes. For example with stock transactions: Buy. Buy. Buy. Sell. This could be exploited to make the state do the wrong thing.

Comment: There are some applications on certain directly connected LANS with DRM that do not transmit.

Chair: There are some ways to exploit current .11 capabilities.

JE: It's sounding like this is a legitimate requirement.

Chair: I put it in to stimulate discussion.

JE: It's not difficult to solve given the timing information in the messages.

Comment: This could be a desired goal versus a requirement.

Comment: Data packets are protected. Make sure that power save is only done with data packets. There are vulnerabilities in power save. Bad guys know that in power save mode they can masquerade as a STA to get packets. They still need the keys and messing with power save is really indirect. APs will still respect the power save bit even in Management Frames. Since Management Frames are not protected, put it in data frames.

Comment: Null data frames are not protected.

JE: They are used commonly.

Comment: You might change the spec to allow encryption of those.

Chair: We tried to make them not protected in 11i.

Comment: The one bit they're transporting is power save.

JE: On this requirement, we have two categories – requirements and goals. Is that fine grain enough?

Comment: Shall, should may.

JE: TGu had a column for this. We could do something similar to tabulate requirements.

Chair: I like that.

JE: This (Table 1) puts the requirements in context. This is the important table that indicates which frames get protected and which don't. Class 1 is before association or authentication. There is no protection. Class 2 is after MAC level authentication and before association. (Re) association and deauth are not protected. The (re)association is addressed by TGr. MAC Authentication in Class 2 is not very important for 11i because it is open authentication anyway – however a rogue STA can see an open auth and send a deauth. Then you'd never get past that stage (Additional clarification by JE post meeting: This DOS attack could also be done by colliding the auth request or by spoofing a bad auth response. There is no practical way to protect against someone colliding your legitimate frames, so protecting the deauth wouldn't help). Class 3 is after association. That's the state of the current document. There have been some suggestions, some coming from TGu this morning. There is some information in the Beacon or Probe Request that they want to post verify the integrity after the keys are in place (e.g. the RSIN IE, which is present in the beacon, is sent as part of the 4-way handshake). They can then verify it was not modified or downgraded. They were wondering if they could stick some of their information into that process. So even if we're not protecting the frame, we can verify some of the contents.

Comment: Maybe we should add another column added for the types of attacks. Frames need protection from these attacks for completeness – replay/delay. People don't think about going into power save mode.

Chair: It's important to not send reassociation in State 3. When some STAs are associated and want to change some parameter to their relationship to the AP, they send a new Association message with new parameters. The AP sends an Accept Response and continues. If you're not protecting Association messages, a rogue STA can send a rogue Association message and break potentially the old session.

Comment: Is this a new outside of the BSS attack using a potential new member of the BSS?

Chair: A third party attacker. You're the AP, I'm associated with you. Someone sends my MAC.

Comment: Is there no session identifier yet besides the MAC address?

Comment: Is that not what the AID is?

Chair: It's not protected.

Comment: The session identifier is protected.

Comment: That's a philosophical argument. The simple solution is to not allow you to do that. In TGr they might allow mechanisms to do that – not send an unprotected Reassociation Request message. Someone should make a short presentation on this. It is not really resolved. People felt we should protect beacons and we agreed by adding text that says "show us".

Chair: We don't know any algorithm that works.

JE: Things that are goals and not requirements should move to Category 3. For example: protect all new future Management Frames no one has thought of yet, protocol efficiency problems (you do not want a solution with an extra 120 bytes in the Management Frame). All this is common sense really. What major points have you got, Jesse?

Chair: I've got four bullets:

1. Req 110 (Confidentiality Protection): Is confidentiality mandatory? A number of people have talked to me offline about authenticate only proposals. This indicates to me there is not unanimonity on requirements and we need discussion. Should we discuss this now or go through the list?

Comment: Go through the list.

Chair:

2. Req 150 (Unicast-Broadcast-Multicast Protection): Is broadcast protection mandatory and what do we mean by that? The action item is to resolve whether 11K has broadcast Action Frames. When Nancy reads the text, it sounds like it does.
3. Req 160 (Selected Deployment of categories of Management Frames protection): This needs to be reworded since it is awkward. We have to try and grapple with multiple versions, new Management Frames, take advantage of existing mechanisms and resolve interoperability issues.
4. Req 180 (Regulatory Requirements): This talks about FIPS. Dorothy says we only need one profile path to be successful.

JE: The larger one is to recategorize requirements.

Chair: Where should we begin? Which of the topics?

Comment: The whole subject has been around for a while, all through TGi. It wouldn't hurt to take a whole subclass that's easy to do. Say take away everything from TGi. What's left to be done with respect to these requirements?

Comment: That would only include Action Frames.

Comment: Why not do TGi on all Management Frames, not just Action Frames?

Chair: You can only do the ones with keys – Action Frames and Disassociation Frames.

Comment: There are a lot of Action Frames before you have keys – which is a contradiction.

Comment: That's what's so hard.

Chair: Nancy, you were going to interject?

Comment: Shall, should, may.

Comment: I'd like to hear an explanation of what application would authentication only be desirable?

Chair: Are there any proponents of that view?

Comment: I'm thinking of it from a mixed mode standpoint. Say you have a deployment protecting a data link. You've got a large deployment base that's not going to be upgraded overnight and you want to protect management frames as well. How do you allow others to exist in a mixed mode environment?

Comment: One mode is I and the other is i+w.

Comment: That's not the question I asked. What if you have the desire to have the ability in w to either provide encryption and data authenticity on Action Frames or Management Frames and the ability to provide data authentication only?

Comment: That's not what I heard. I thought I heard that some people desire a requirement for anonymity.

Comment: That's something else. Confidentiality and data authenticity in some scenarios only. Maybe another suite with data authenticity only?

Comment: With confidentiality only, network administrators have a problem that they can't bring out a packet sniffer.

Comment: Still, the headers are not protected.

Chair: I'm trying to come up with a good example:

Comment: Related to confidentiality, although I haven't seen it done yet, there are proposals out there for location sensing - figuring out where you are.

Comment: I think the reason you need a confidentiality mechanisms is that Action Frames are a kind of data frame invented from a STA to an AP, instead of STA to DS. It's used by all sorts or things – k, now they're talking about it in v. It's going to be used more and more going forward. Some of the applications need confidentiality protection when an application sends management data in a data frame – such as sending GPS coordinates. If we don't have a confidentiality mechanism, we're falling short.

Comment: I absolutely agree. The solutions must have a confidentiality mechanism. My question is whether in addition to offer a data authenticity only mode.

Comment: That gets into the negotiation part.

Comment: That opens a Pandora 's Box with additional algorithms.

Chair: If we take the bite of broadcast, could that be authenticate only? It was never addressed in 11i.

Comment: I've done a lot of work with reliable multicast and unicast protocols. We have a type of broadcast, but we do not know the receiver set. I claim the path to the solution is identifying the receiver set – then you know who you are sending to. You can have unsecured broadcast and secured broadcast, which will have special properties in a known set.

Chair: We have a known set in 11i.

Comment: No, not for the beacon.

Comment: Put up a chart and classify the requirements.

Chair: Even cryptographers agonize for months as to whether to turn on confidentiality or just data authenticity. It's just too hard to make the choice. If you always have it, the answer is right.

Comment: I like it, but it should work in a mixed group too.

Comment: Mixed environments are a reality.

Comment: If you do it right, you can allow negotiation.

Comment: Some clients that are not upgraded can't negotiate.

Comment: The fundamental questions is there a security need for the data authenticity mode? I haven't heard a compelling argument.

Comment: There is the debugging argument.

Comment: To go with data authenticity framework, there is a log of overhead to support it – new algorithms, new negotiation schemes. If you need it you need it, but be really sure.

Comment: From a legacy standpoint we're going to need it.

Chair: Any further discussion?

Comment: We should create a chart where we separate unicast and broadcast. Unicast is clear. Broadcast has different requirements.

Comment: Here's a suggestion to satisfy both Dorothy and Nancy. You can have different requirements for confidentiality and for authenticity only mode. People can then bring proposals in.

Chair: You can have different mechanisms. Relaxing confidentiality for broadcast is desirable, but not for unicast.

Comment: Confidentiality is mandatory, authentication only is not mandatory.

Chair: Will someone sign up for this useful exercise and bring back something tomorrow to put in the Requirements document?

Comment: Which activity?

Chair: Categorize requirements as applicable to unicast vs. broadcast. Kapil and Jon will do this. Do we have enough action items to move on? Is broadcast protection mandatory?

Comment: For Class 3, broadcasts. Not beacons.

Comment: DHCP.

Chair: Those are not Management Frames. Those are Data frames.

Comment: 11k measurement requests.

Comment: TGs.

Comment: If all Management Frames are sent by the AP, it's a simpler problem.

Comment: Nothing in the standard says that.

Comment: There is no keying for ad hocs or direct links.

Chair: We have a solution for ad hoc, although it's not great.

Comment: Back to the original question, do broadcasts need protection?

Chair: This requirement makes it mandatory. Is it an optional feature?

Comment: Do we take the work on here? Or is this a different task group later on?

Comment: Yes, it does need protection.

Comment: Group key protection is not sufficient because you lose accountability.

Chair: Any member of the group can forge the packet. The group has to decide if they want better authenticity of messages than the naive algorithm that 11i uses and are willing to pay the cost. I gave a presentation in Cairns. There are different classes: Public keys - not what you want to do. Tesla, it has its own undesirable side effects, such as loosely synchronized clocks, cache messages until the next validity period.

Comment: There are always risks. The group key mechanisms have weaknesses. It gets to be a cost/benefit judgement.

Comment: Those weaknesses depend on the sender – AP or STA.

Comment: Can't any STA forge a message so it looks like it came from another AP?

Comment: If we're comfortable with that trust for Data frames, why are we unwilling to live with that level of trust for Action Frames?

Chair: We never had the discussion in 11i. At the time, it was not appropriate to raise the topic. It would only cause consternation. Hopefully we've grown in knowledge. It's appropriate if the requirements say a solution has to provide protection for broadcast without saying what that means. If we get a Tesla proposal, we can argue.

Comment: We should leave the requirement open. What I've learned is there are a lot of possibilities for protecting Management Frames.

Comment: If we have a broadcast of a Management Frame from a STA, why can't use the 11i solution?

Comment: Do we want to figure out a solution to allow broadcasts from a STA?

Comment: It's an interesting problem. Someone might want to work on it.

Comment: We started working on it – not that we had it solved. There was too much to add in.

Comment: You have multi destination video. People are starting to do work on the appropriate crypto.

Chair: Should we protect broadcast from a STA?

Comment: We should edit the Requirements so that proposals could come in with AP broadcasts, STA broadcasts or both.

Comment: It is legitimate to exclude Action Frame broadcasts since no standard does that.

Chair: What do folks think?

Comment: There are some current, proposed techniques for doing mesh related stuff. Some stations broadcast some things at different power levels. People are fiddling, so you could have broadcast Management Frames. There are no rules out since they're not here today.

Comment: Agreed, but to solve our problem, we could rule it out right now.

Chair: Any other opinions? It sounds like consensus that we want to require protection from broadcasts. We want to specify that from the station and from the AP are two different problems. Did I summarize that correctly? What else do I need? Is there any further discussion?

None.

Comment: I'd like volunteers to go off and make a straw man process and come back and present it tomorrow or sometime this week. Does anyone want to volunteer? Ok, Kapil, Donald and Nancy. I n Cairns we talked about an outline for a process: Issue a Call for Proposals, ask for slide ware by the September meeting and text at the November meeting. Assuming a small number of proposals, we could have the selection in January. Any other comments, ideas, suggestions? Does that make sense?

Comment: It depends on the number of proposals.

Comment. If you have 300 proposals, you have other problems – you're too wide in purpose.

Chair: I doubt we'll have that many. Is there anything anyone would like to discuss today?

None.

Chair: Hearing nothing, is there any objection to recessing until 4:00 pm here tomorrow?

None.

Chair: Hearing none, we' in recess:
5:38 pm PST

Tuesday, July 19, 2005
Call to Order
Meeting called to order on Tuesday, July 19, 2005 by Jesse Walker at 4:00 pm PST.

Chair: Asked the group if he could change the agenda to approve the following teleconference minutes:

- 05/615r0 June 16, 2005 Teleconference minutes
- 05/634r0 July 7, 2005 Teleconference minutes

No objections.

Chair: Does anyone have any issues with either document?

None.

Chair: Hearing none, would there be any objection to approving documents 615 and 634.

None.

Chair: Hearing no objection, the minutes are approved. What we have on the agenda today is to continue to hear discussion, presentations for the first hour and selection criteria in the second hour. Phil MacKenzie wanted to make a presentation which fits into the first hour of the agenda.

Presentations
PSA and PSA-D 11-05-0651-00 Phil MacKenzie et. al.
Phil MacKenzie (PM) said this was more of a pre-proposal. More like floating some ideas.

PM: (slide 5) This second attack I've not heard anyone bring up. There is a STA associated with an AP. In the DS, there is some type of mapping of MAC to AP. A rogue STA comes in with the same MAC. The spec says without any authentication, the AP informs the DS it's now associated with this AP.

Comment: Informing the DS is a recommended practice. It's not formal part of the .11 standard. It's often implemented.

Comment: The document was TGf. It's an optional thing, not required.

Comment: It also presumes no security is turned on.

Comment: The rogue AP informs the backend.

Comment: The authenticated AP is under attack.

Chair: In 11i, we should have made sure to not to tell the DS) set until after the 4-Way handshake completes successfully.

PM: (slide 6) In the first one (Authentication), it the PTK exists at the AP (.11w bit set), ignore the frame.

Comment: Where is this bit?

PM: Somewhere in the proposals, when you go to an AP and say you want to be an 11w protected association, you need some type of indication for the negotiation that says you want to protect Management Frames.

Comment: How would this work for the STA that is in ownership of the correct PTK and PMK and so forth? It would have to MIC frames, like its own Disassociation.

PK: Yeah, next slide (slide 7).

Comment: In the authenticated case, if the STA has reset for whatever reason and is in State 1…

PK: That is the PSA-D protocol. I added some detail to handle other messages to make it more complete.

Comment: I'm embarrassed to say that I just rebooted my laptop and I most likely lost my PTKSA and the AP kept that state.

PK: This points out there are times when you do want to send a Deauth without a MIC. Say the AP is in State 2 (authenticated, not associated) and the STA is in State 1. You might want to send a Deauth to the AP to get back to State 1.

Comment: No one has a PTKSA.

PM: The AP has no PTKSA and goes back to State 1. (Slide 8) Now, the problem you're talking about. Both the rogue station plus deadlock. The changes are to remove the MIC message from the Deauthenticate and Disassociate and allow the Station to defend the PTKSA with a new frame called Defense. (Slide 9) If this was the PSA protocol, the PTKSA is still at the AP. No matter what the STA does, it can't associate. This happens as long as the PTKSA is cached at the AP. (Slide 10). Here's the proposal (goes over slide).

Comment: The attacker can prevent the Defense or Defense Response. But this is better than nothing.

PM: It's hard to prevent an attacker that stops frames. There is no way to stop him from the Association.

Comment: You can stop the Association by colliding your Association Responses. The advantage he has here is he can initiate the attack by sending the Disassociation.

Comment: The attacker can start the process and wait for the Defense.

Comment: He can wait for the Association attempt and prevent them from success.

Comment: When he sends the Defense, he can stomp on the Defense Query and still wins.

Chair: He can win, but you now make the attacker expose himself by actively attacking.

Comment: You're making it harder for him.

Comment: Is this enough of a bar? I like it.

Chair: It's worth considering. I think we know there's no complete solution to the problem. It's not a problem that admits a solution. At this point, if we want to do anything, what type of heuristics can we apply to improve things?

Comment: He has to apply a set of thresholds with how much effort the attacker would have to mount.

Comment: Air Snort version 2 two weeks after TGw completes.

Comment: The more you can do the better. What if there is no Defense Response, but you receive any other traffic that's MICed?

PM: I didn't put it up.

Comment: The MICed message could cancel the timer.

Chair: It depends.

Comment: There is a race condition.

Chair: You don't know when it was sent. After the last one received? You don't know if he's still there. It's clearly worth thinking about more.

Comment: You could shorten the iteration, if the AP sent a Defense query if it received an Authenticate message when it already had a PTKSA. This would be instead of waiting for a DeAuthenticate message. Maybe that helps.

PM: There are a couple ways to deal with some of the issues. (Phil goes over Slide 11).

Comment: What if a STA has a PTKSA?

PM: He tries to Authenticate. If there is no response, the AP is either out of range or he lost the STA's PTKSA. The STA sends a Deauth to get rid of the PTKSA.

Comment: It ignores the Defense that comes back.

PM: This does not work in the PSA protocol. If the message is not MICed, it kills the PTKSA.

Comment: Alternatively, you could have the AP send the Defense Request to shorten the cycle.

PM: The idea was not to change what happens before you had an existing association.

Comment: Neither side has a PTKSA.

Comment: If the AP has one, you're saying the AP should always send a Defense.

Comment: If you send it unMICed, the AP keeps dropping it. If you send a Deauth, you finally get a Defense and you timeout. You then Associate. If you're not in State 1, you get the challenge right away and only wait one cycle of time out. It shortens the iteration.

PM: Yeah, I talked with my colleagues on this. I thought this was a simpler proposal to keep all the Defense at the Deauthenticate and Disassociate, but they argued against that.

Chair: The task group will adopt what it wants and then change it.

Comment: The problem with the Defense mechanism is that you can't tell if the station forgot the PTKSA or it's an attacker.

PM: You send a Defense Query.

Comment: The AP can trust itself.

Chair: On what premise?

Comment: The AP asks everyone to Defense as a matter of normal operation. You can reset a random counter. If the counter counts down and you've not heard from that station…

Comment: Like a keep session alive?

Comment: The attacker would not know what time it goes off.

Comment: This would be at odds with the power save.

Chair: You would need a resync mechanism out of power save.

Comment: The group key update is already installed. It sets the time, although it's not randomized.

Comment: It could be.

Comment: The spec doesn't say when before you roll over.

Chair: Thank you. That was quite stimulating. Here's a process question for the second hour. If there are no other requirements…

Comment: Someone should go build a table, or make an attempt at it.

Chair: Would the group like to discuss it now or wait until later on?

Comment: There is a new document on the server, 05/718, which incorporates the changes made yesterday and it adds the table with categorizations.

Chair: Would you rather do it now or after the evening supper break? Do people want to discuss requirements or process?

Comment: The requirements won't take too long to do.

Chair: Let's talk about requirements until 5pm as the agenda shows.

Requirements for Management Frame Protection 11-05-0718-00 Jon Edney et. Al.
Jon Edney reviewed the changes since the last meeting.

Comment: How did you capture that (referring to assigning categories to each of the requirements in the table)?

JE: I don't know if I did. For Req 1130, this had to be protected. For Req-150, I split this into data from the AP, Type B/Category 2 – nice if you can do it and the original requirement said you could have separate mechanisms for unicast and broadcast. This is not really a requirement, so it is Category 3. Categories of protection – I had a crack at writing this text (Req 160).

Chair: You need a mechanism for capturing it. This is the only plausible thing that makes sense. There will be new Management messages and our spec won't protect them As people write the future 802.11 spec, they can use w and one of these new categories.

JE: Req-170 – I almost decided this was not worth having.

Comment: This is more like an implementation.

JE: This is a circular argument. It says to use transient session keys and later accepts management protection mechanism.

Comment: Protection should be available as soon as keys are in place. Is this a requirement?

Chair: Henry has a good point. It's worth stating.

JE: Req 200 and on was previously listed as a goal and are now Category 3. I think all the text and comments below this are the same as before.

Comment: Back to the first bullet. When we do conference calls or talk in the hallway, the lower case or uppercase M for management messages will be tough. Maybe Protected Management Messages or Eligible, …

JE: The Chosen Messages.

Comment: I like Chosen.

Chair: We need some terminology. When Emily and I wrote the original proposal that got this group launched, we called them protectable – but that's not a good name.

JE: This is an opportunity for another acronym (CMM).

Comment: I'm not comfortable with the lack of explicit statement in here with respect to allowing a mechanism to not include confidentiality.

JE: Right, what I thought we agreed to yesterday was that the availability of a confidentiality mechanism would be mandatory, but not applied in all circumstances.

Comment: Right.

JE: This comes with the categories of protection. One category was authentication, another category was authentication + confidentiality.

Comment: Req 160 is categories of management types – authentication vs. 11k vs. 11h. To me, that's a different dimension.

Chair: I agree with that. We need a sub requirement to confidentiality – something like it is allowed to be individual messages that do not provide confidentiality as long as the protocol suite provides it. The administrator can turn it on or off. I don't like that feature either, but it is reasonable to allow if from a requirements perspective.

JE: A simple way to capture this is to say here in 110, such mechanism shall be turned off.

Comment: It can be turned off globally or on some messages and not for others. We need a category of MICed messages that are not protected.

Comment: We have to keep it simple and not have keys flying around or counters.

Comment: I want to caution about not excluding the general. Personally I'm ok if we said broadcast may in the general category with those we just MIC, but unicast provides confidentiality. How about "it is mandatory that such a mechanism be available but not mandatory that it be used in all cases: for 110?

Chair: We vote on this Thursday. Debate starts at 16:50.

Comment: Under Overall Design120 – we mention behaviour with w capable client and non-w capable client in a w capable AP. What about the reverse? A w-capable client to a non-w capable AP?

JE: If policy allows, it will recognize in the beacon whether there is w support or not.

Comment: Capabilities are advertised in the beacon.

JE: Typically there's a capabilities bit.

Comment: If the station is w capable and configured and policy allows it to associate to non-w APs, if it starts the negotiation, it needs some authentication indication that w is not supported – even if the beacon says it's not supported.

Chair: This has to be addressed somehow or there is a downgrade attack.

Comment: If it's all or nothing, you could put a bit in the RSN that w is on and everything falls out. This is protected in the 4-Way.

Chair: If it's in the RSN, it's protected by the 4-Way.

JE: I could add some text that this is subject to policy constraints of a 802.11w station that it may connect to a non-802.11 w AP by disabling the 802.11w provisions.

Comment: This should be part of number 1.

JE: Good idea. Any other comments?

Comment: Say 11i on for w to take effect.

JE: That is part of the key hierarchy.

Comment: It's kind of obvious, but…

JE: I'll do an updated version in time for Thursday.

Chair: There will be time to talk after the break if there is such a desire. The next part of the agenda is to discuss the process. We have the remaining hour dedicated to this. Kapil or Nancy, are you prepared to discuss 717?

Comment: Yes.

Requirements for Management Frame Protection 11-05-0717-00 Kapil Sood et. Al.
Kapil Sood (KS) mentioned that Nancy Cam-Winget, Donald Eastlake and himself huddled up and hashed out a proposed process based on what they did in 11s and 11r and what worked in both, what evolved and to address the needs in 11w.

Comment: We used a lot of r and a little from s. We picked arbitrary dates.

Chair: You might want to change the "Intent for Proposals" (slide 2) to the Monday after August 12th. Some of us will be in Beijing. Estimating when midnight will be will be difficult.

Comment: 30 days is a minimum from whenever it is announced. If the Call for Proposals is on Friday.

Chair: We can send it out on Thursday if we vote for it then.

Comment: Why constrain it to 30 days? Why not push it into September. Do it a week before the meeting.

Comment: How much time do you need to talk to Stuart?

Comment: We picked the earliest date to give Mr. Chairman time to figure out the time slots.

Chair: Stuart will ask us Thursday night. If we have the current crowd and everyone gives one, we need 8 hours.

Comment: Clint isn't here.

KS: 30 days after proposals.

Comment: If you make it too short, someone will come back.

KS: Midnight on that date, right?

Comment: Yeah.

Comment: About Step 2, the problem with this is someone with pomegrates for 20 minutes, they would still get 25%.

Comment: This guarantees no one will get eliminated.

Chair: Make it 33%.

Comment: This is not to have a selection. It's to get a response from the audience.

Comment: In r, the first couple voted seriously, and then the rest got 100%. Why tick someone off. Everyone got more than 75%. This is a null step.

Comment: What's your point.

Comment: Not to do it.

Comment: Drop the 25%?

KS: Is everyone ok with that?

Comment: Ok.

Chair: This is to help you gauge how much evangelism is required.

KS: (Goes over slide 3)

Comment: Another thing we learned from r, in those 2 weeks, people make changes. Then which version do you use.

Comment: We had a half hour debate.

KS: Clint assumed veto power.

Comment: You have to put something on the server that is relatively complete.

Comment: You should put another bullet that as long as there are not substantial changes.

KS: If proposals are merging, you can combine text in two weeks. It makes it more flexible for people to merge.

Comment: The goal is to put something out there. Here's something I'm starting with.

Chair: If they merge, the right way is that they each present their own, but we have merged and select this out of this one and that one.

Comment: Another option is to maybe turn it around and elect to take a half hour of time on their proposal and then half an hour on the things that were changed. Does anyone believe we'll get more than half a dozen?

KS: I'm assuming this is not the situation in mesh or r with 15 proposals.

Comment: At the end of the day, if there is a great proposal and the group agrees, you can just do it. This is the way it should work and you not get arrested or put in jail if you make a change.

Chair: So far the group dealing with security has been pretty cooperative on consensus.

Comment: You need some qualifier on that last sentence ("Proposals voted off are encouraged to merge with the survivors"). Relative to when.

Comment: After Oct. 28 it's not allowed into the presentation.

Chair: We expect people to submit proposals in time for people to review them.

KS: Is that agreeable? (Reads Step 4) This is a date we really thought about. We don't want people working over Christmas and New years. When they come back they need some time to resync. If there are hard feelings on this it could be changed.

Comment: In looking at what happened in r, there was not complete draft text. Maybe complete proposal text.

Comment: 802.11 draft format with instructions to the editor. Not.

Comment: How does the editor merge two proposals?

Comment: Like that part in r.

Comment: Check with the editor to see if he's willing to take that on.

Comment (Jon Edney): I'd love to merge two proposals.

Chair: In r, we've had written ballots. It doesn't say written here.

Comment: We say it's up to the chair. This is not as big or controversial as s.

Comment: Or n.

Chair: I need to adjust my estimations. There is no need for a written ballot.

Comment: If there are 12 proposals, you need it written.

Comment: The motivation for a secret ballot is not to be anonymous. The order for the first affects the second. That was the point. It's not needed here.

KS: Just so Jesse knows, the chairs of s and r had flow characteristics and statistics.

Comment: Donald also gave us a nice formula to count ratios of votes to ensure there were no ties. But we chose not to put it here. We didn't think we need it.

Comment: A minor nit. The last slide, try "create the base draft" or "adopt into the base draft".

KS: Then we had a motion.

Chair: But with the agenda we adopted, we'll have a vote on 15:20 on Thursday.

KS: I'll upload this as an r1. I'm done.

Chair: All the hard work is done. We have the process. Is there any process related question or comments?

None.

Chair: Hearing none, does anyone have any business for this session?

None.

Chair: The agenda says to come back after dinner to hear requirements or presentations. Does anyone have any presentations after dinner?

None.

Chair: Is there any discussion needed on requirements after dinner?

None.

Chair: Folks, we don't have any more business. I need a motion to continue into ad hoc.

Moved: Nancy Cam-Winget
Seconded: Keith Amann
Vote: Unanimous consent

Chair: We're in ad hoc mode until Thursday.
Adjourn 5:29pm

Thursday, July 21, 2005

Call to Order

Meeting called to order on Thursday, July 21, 2005 by Jesse Walker at 4:05 pm PST.

Chair: Our agenda today is to discuss requirements, selection criteria and have a vote on the Requirement document, the Selection Process and if we get both, issue a Call for Proposals. We will also authorize any conference calls. We have one motion forwarded to us by you (Stephen McCann [SM], Chair of TGu) under the banner of the requirements discussion. What I'd like to propose, if we adopt this motion, is to incorporate into the next version of the Requirements document. We have the 4 hour rules problem. Any discussion on this way forward?

Comment: We need to adopt the document as, knows the pending updates.

Chair: This is a working document which will change through time as we understand our problem space better. Any objection?

None.

Motion: Move that TGw accepts TGu's request that TGw address the requirement of providing protection on the beacon element.
Mover: Stephen McCann
Second:
Result:

Comment: This is too specific. It's too early to get into that amount of detail.

Comment: You forgot Probe Requests.

SM: Here's some background to this. One of our TGu requirements was to provide information about an external network at layer 2 when in State 1. we will provide some bytes in the beacon that give you information about ht inter/intranet, if you're roaming or not, what security facilities are in that external network. What we're trying to do is pass these requirements to TGw generic enough so we can cover all the requirements. We're just collecting requirements and don't know the solution yet.

Chair: We like more specific requirements.

Comment: Do you need privacy protection? What type of protection?

Comment: As much as you can give us.

Chair: We should reword it.

Comment: 802.11i provides some of the protection for RSN IE in the beacons. When we were in TGi there was a big discussion as to whether or not to protect all the other IEs in the beacon as well. We decided this was a bad idea because we did not know what all the elements might be used for. We're in danger of going down the same path. We should not adopt this motion now. You can come back at the next meeting with some crafted text on the elements to protect.

Comment: It should meet certain guidelines.

SM: The only problem is we have to think about the solution of the interworking requirements. We don't know what people will come in with, even in September, as to which facets of the beacon need protection.

Comment: Why bring up the proposal now?

SM: I did that at the start of the week to close your requirement's list.

Chair: Closing the requirements is not quite what we have in mind. We need to establish our first requirement's baseline. This is a living document. We will add more requirements as we perfect our understanding of the problem. In principle, requirements could be added up to the start of Sponsor Ballot.

Comment: Maybe this motion should be rephrased. TGw notes that TGu needs protection of the beacon and commits when requirements become clearer.

SM: Either that or the alternative is to drop this motion and perhaps minute that we've gone through this discussion and go back when we have a clearer requirement to give to you.

Comment: What are we trying to achieve is that all requirements are justified. We can't have one line to provide certain requirement's that are not very clear. What are we trying to achieve?

Chair: What I've heard is a statement by the TGu chair that he will go back and rework this and that we'd like more specific requirements before considering. Is that a way forward?

SM: I withdraw this motion and we'll go away and give it some more consideration and revisit you at some future point.

Chair: Thank you. We'll welcome input in the future and give it due consideration.

Comment: We agree we'll be accommodative with TGu. Do you have a good idea on what the opportunity window will be?

Chair: That's actually up to the working group. We're clearly bounded by Sponsor Ballot on one end. The Selection Process has a Call for Proposals going out today, slide ware in September, text in November and the down select in January. But you know what, that's only to produce our first draft. A year from now we could add new requirements to u and see how to address those new requirements as long as that's what the working group wants to do.

Comment: What's the opportunity window?

Chair: 9 months to a year. Do you think that's a reasonable time?

SM: Fantastic. We have proposals in March. Hopefully we'll know what type of protection we need then.

Comment: We need more detail – what to protect, what type of security.

Chair: Any more discussion on this topic? Anyone else have any requirements or related issues to discuss?

None.

Chair: We have the vote schedule for 16:50, which is 30 minutes from now. Since we announced the vote, I don't want to do it early.

Comment: Housekeeping.

Chair: Do we need any conference calls between now and the next plenary in November?

Comment: We're just doing a Call for Proposals. What would be on the agenda?

Chair: I don't know, it's up to the group. Maybe talk about the proposals, selection criteria, and requirements. That exhausts the topics.

Comment: Do we have to authorize until the next plenary?

Chair: Yes, although we don't have to hold them.

Comment: I would disagree that you only have do authorize at plenaries.

Chair: Does anyone see any calls between now and September?

Comment: Not until January.

Chair: If new requirements came up, that's the only one I can think of.

Comment: How close are we to adopting the Selection Criteria?

Chair: We'll do it if the vote passes for the Requirement's document.

Comment: If the Selection Criteria is solid, we don't have to do anything.

Chair: We had a discussion on Tuesday. There seemed to be good consensus. We'll find out at the vote. It doesn't seem like there is a need for conference calls or interim meetings. Is there any other business we can transact before 4:50?

None.

Chair: Hearing none, is there any objection to recessing until 4:50?

None.
Recess. 4:27pm

4:50pm Chair calls us back in to order.

Motion: Move to adopt 11-05-0718r1 as the TGw requirements
Moved: Kapil Sood
Seconded: Nancy Cam-Winget
Vote: 21-0-3 (y-n-abstain)

Motion: Move to adopt 11-05-0717r1 as the TGw selection process
Moved: Jon Edney
Seconded: Mike Moreton
Vote: 19-0-5 (y-n-abstain)

Comment: Point of information, is the intent to send this to the mailing list?

Chair: I think it's a courtesy.

Motion: Move that TGW publish a call for proposals for IEEE 802.11 TGw; proposals will be presented starting with the September 2005 meeting; presentations must be available in doc 11-05-717r1; intent to

submit a proposal must be sent to Working Group Chair and Vice Chairs and TGw Chair by August 21, 2005, 23:59 ET.
Moved: Jon Edney
Seconded: Henry Ptasinski
Vote: 19-1-3

Chair: Any other business?

None.

Chair: Any objection to adjourning?

None.

Adjourn 5:10pm

References:

IEEE P802.11
Wireless LANs

Minutes of WNG SC July 2005 Session

Date: 2005-07-18

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Abstract

Minutes of WNG SC meeting held during the IEEE 802 Plenary in San Francisco, California, USA from July 18th – 22nd , 2005.

Contents

Executive Summary

1. IEEE 802.1AM PAR issues. This issue stimulated much discussion and excellent debate. The conclusion was to hold two straw polls which reflected the feelings of the membership. In summary it is felt that this PAR is rather immature and the whole issue should be re-considered by IEEE 802.1.

2. Update on TGu and impact on other task groups. This presentation summarized the current objectives and goals of TGu and how its work possibly impacts other task groups within IEEE 802.11.

3. AP – AP Communications. The presentation mentions how AP to AP communications was not really solved by previous work within IEEE 802.11.2 (TGF) and now is the time to re-consider this initiative. The presentation concluded with a motion, requesting that members consider this issue to be within the IEEE 802.11 scope.

4. 802.11 MAC extensions for high rate video. This detailed presentation states that even with the introduction of IEEE 802.11e (QoS amendment), high rate video can only be supported over IEEE 802.11, through the introduction of more advanced techniques.

Afternoon session Monday 16:00 – 18:00

Logistics and Agenda (11-05-0684r0)

WNG Meeting called to order by the chairman TK Tan (Philips) at 16:05. There were 3 new people in attendance this meeting.

The objectives of the session and the IEEE 802 & IEEE 802.11 Policies and Rules were reviewed. Patents and By-laws read out by TK Tan, together with licensing terms and associated conditions.

Attendance issues for this week only were explained by TK Tan. The agenda was reviewed (11-05-684r0) and approved unanimously.

The minutes from the May 2005 meeting (11-05-0486r1) were reviewed (executive summary). It was noted that no-one has replied to Jesse Walker's May request for further submissions on multicast problems. No comments were received and they were also approved unanimously (Proposed T.K. Tan, Seconded Roger Durand)

TGu overview (11-05-652r1) – Stephen McCann

Stephen presented a summary of the IEEE 802.11 TGu activity, describing some next text written to explain the objectives and goals of this group.

Q: Need to update version on the server with r1

Q: What is inside the IEEE 802.11 AN cloud.
A : Not defined yet, still gathering requirements.

Q: Example of TGu compliant device
A: 802.11 STA which want to connect through to IMS and MBMS services

IEEE 802.1AM PAR comments

IEEE 802.1 AM PAR Comments (11-05-635r1) – Andrew Myles

Andrew speaks to delay IEEE 802.1AM PAR and perhaps take it into an alternative forum. Against pointed out that this his own personal submission.

Technical reasons with the PAR. The PAR was developed without the co-operation of the wireless groups. There is limited interest in this PAR and indeed they lack the expertise within IEEE 802.1 to do this.

Submission also states that at the end of the San Antonio tutorial there was a lack of interest in it. It appears that IEEE 802.1 then took this forward and produced the PAR in isolation.

Conclusion : Delay the IEEE 802.1 AM PAR, so that it can be discussed further with some more background and expertise.

IEEE 802.1 AM PAR Comments (11-05-675r2) - Roger Durand

Roger speaks in support of this PAR. This is his own personal submission.

Companies are starting to do different things with the standards now and this can differentiation be addressed by IEEE 802.1AM. Addresses multi-system multi-functional interoperability.

IEEE 802.1 group is addressing IEEE 802 architecture and hence they are the place to do this.

Questions

For the PAR: A common denominator is very useful. This is useful for the future.
Against the PAR: It appears to be for a common dictionary. How does language help with co-existence.
For: IEEE 802.1AM is not addressing co-existence, IEEE 802.11 and IEEE 802.16 may share the same spectrum.
Against: Ok, what about the re-use factor. Can you purchase a common stack. It mentions code re-use.
For: No, if one is building a product, then as an overall system, you can have common use.
Against: A few years ago IETF tried to solve generic problems for different link layers. They really struggled. For example, would IEEE 802.11k become irrelevant in the future, if this goes ahead.
For: What happens if you have a IEEE 802.11j connection though with IEEE 802.11k. Can it handle this at the moment.
Against: At some companies people have avoided wireless and suddenly they are no deploying it. Hence I'm very concerned about wired people taking on wireless activities and it usually requires reworking afterwards.
For: This should be done by both wireheads and airheads. Expertise is in both IEEE 802.1 and wireless groups.

Question to presenters: What is the scope of RF management in this context? RF infrastructure or just a RF client in the STA.
For: The expertise resides in multiple groups within IEEE 802. They should somehow come together. Regarding the company issue, this make it easier to do distributed management, as opposed to central management. Regarding the RF management and scope, IEEE 802.1AM enables RF management.
Question: But is this from an operator or user point of view? Is this achievable?
Chairman : Let's go back to the original point.

Against: Ok, so what will IEEE 802.1AM do with the wireless comments? Surely they'll only take what they want. There is some offense taken to IEEE 802.1's attitude to wireless expertise, within IEEE 802.11.
Statement: IEEE 802.1AM would like to work with the wireless groups and so far they have not worked with the wireless groups. So let's give them the benefit of the doubt. To push it forward with the approval of the wireless groups would be a mistake.
Against: Ok, so what are we doing here? What is re-use here? What does this dictionary mean?
For : It is a dictionary. Capabilities will be built on top of this.
Against: So IEEE 802.1AM are only defining a dictionary??
For It's not clear. Architecture is being decided by PARs and not by task groups. This PAR has been actually drafted over some period of time.
Against : It's not really wired v wireless. What is the impact on IEEE 802.11?

Generally feeling within WNG SC, is that people do not understand this PAR.

Chairman : Shall we start a new PAR
For : We thought the wireless groups would give feedback on this specific PAR.
Against : Actually we did create output documents from the Wireless Ad Hoc Architecture meeting on Monday morning. Let's continue to take this forward.
Against: The alternative is to allow IEEE 802.1AM PAR to continue and let's see what happens. If they have faith in it, then let them do it.

Chairman : We need to give the IEEE 802.11 WG Chair direct feedback from WNG SC as to what he should recommend at ExCom on Friday.

Q : I am in support of this PAR. You can not control neighbors networks, this is just not possible. IEEE 802.15 and IEEE 802.11 networks in the same home could be controlled by a common system and this seems to be supported by what was said earlier.
Against: Common management would be great in the home, but this does not require a common management interface. It leverages the existing management systems within each system.
Q : For example, SNMP on IEEE 802.15 and IEEE 802.11. I don't see channel and power in the PAR
Against : Yes, they are there in the PAR but there should be other parameters in there. The people who are proposing this should have some idea of all the measurements they want to make. For this effort to be worthwhile, many parameters should be consider, not just 2. Hence IEEE 802.1AM is looking at the lowest common denominator, rather than a common management approach.
Q : But the PAR implies other parameters, which have not been mentioned, e.g. received signal strength. Why can not these go into a common management interface? I think there are really more than two.
Against: Ok, but that's what the IETF tried to do, and failed. Look at SSID for example.
For : The named parameters within the PAR were only examples.
Q: Surely IEEE 802.11, IEEE 802.15 and IEEE 802.16 should address common parameters.
Against: I suspect that this PAR does not have any more contents behind it, than what is written.
For : I would argue against this, as you have limits to be what can be written in the PAR.
Against: Are the supporters of the PAR working for network management companies?
For : Yes, as an example I am.
Statement : We have loads of parameters within IEEE 802.11k which are applicable. Country, power capability, neighborhood lists etc.
Q: Both of these arguments are not addressing the 'energy in the air' issue. People appear to be nervous within IEEE 802.11 about this IEEE 802.1 PAR, which they are supposed to be subservient to.

Chairman : There is a need for a management framework, but we don't know how to take this forward.
For : Tony Jeffries will come to IEEE 802.11 on Wednesday, to address IEEE 802.1AM issues. Specific questions should then be addressed to him. However, I'm sure what specific conclusion we have come to here.
Against: There are about 20 specific questions at the end of my document which need to be addressed.

Statement: We should address more of these issues within a new Study Group, rather than bringing them up in the PAR. Because IEEE 802.11 and IEEE 802.16 have not participated within the IEEE 802.1 Study Group phase.
Against: So, let's delay the PAR and get them to re-consider it.
Q : Ok, I agree that we should delay the PAR and help to re-work it.
For : There is a lot of politicking going on here.

Chairman : Ok, but lets not talk about that.
Statement : But standards only work, when they are generically supported.
Chairman : There is a need for a solution to this problem. It needs co-operation between IEEE 802.11 and IEEE 802.1
For: The IEEE 802.1 provides a cross standard approach to management. Hence IEEE 802.1 is the only place that this can be really done. This is really required for the future of products. The ownership of the problem does not lie within the wireless groups.
Chairman : So how do we get the best minds together on this.
For : Lets get IEEE 802.1 to meet with the wireless groups at interims then.
Q : Look at IEEE 802.22 which caused an argument between IEEE 802.16 and IEEE 802.11. How there is no expertise within
IEEE 802.22, as they sponsors will not allow them together.
Q : Does IEEE 802.1AM look at wired management.
For: No, this is specifically for wireless.

Conclusion : Not to endorse either Andrew's or Roger's presentation.

Against : This group recommends that IEEE 802.1AM PAR be delayed or withdrawn, so it can discussed fully with the IEEE 802 wireless groups. At some point in the future the PAR can be re-introduced.

Against : Some sort of study group within IEEE 802.1 should be established to take this analysis further. The PAR need not be passed for this to happen.

For : Normally, IEEE 802.1 does not have study groups, it just writes PARs.

Chairman: Ok, let's produce some straw polls to gauge the feeling of WNG. This will then be reported back to the WG.

Straw Polls

Recommendation from IEEE 802.11 WNG SC to IEEE 802.11 WG that the IEEE 802.1AM PAR approval is postponed. It would like to see a study group created within IEEE 802.1, with the intention of revising this PAR to address the RF management issue, ensuring that stakeholders within the wireless groups are invited. Such meetings should be collocated with the IEEE 802 wireless interims.
IEEE 802.11 should therefore invite IEEE 802.1 to participate in their interims.

Straw poll : 23 (for), 4 (against), 2 (abstain)

Recommendation from IEEE 802.11 WNG SC to IEEE 802.11 WG that it would like to see a study group created within IEEE 802.1, with the intention of revising the approved IEEE 802.1AM PAR to address the RF management issue, ensuring that stakeholders within the wireless groups are invited. Such meetings should be collocated with the IEEE 802 wireless interims.
IEEE 802.11 should therefore invite IEEE 802.1 to participate in their interims.

Straw poll : 7 (for), 13 (against), 7 (abstain)

802.11 scope (11-05-668r0) Mike Moreton

There is no specific document which describes the scope of IEEE 802.11. However, there is an 802 scope document, which covers almost everything. Within this it does mention IEEE 802.11, in a limited way. It talks about the MAC sub-layer.

However, this MAC sub-layer is not just the MAC. It does not limit us to a peer to peer protocol. Seems to be anything that is not the PHY layer. Additionally ISO 7 layer model is not actually reality, and the GPRS stack diagram is a good example of something that breaks this. A layer presents a service to the next layer up.

"Standardization should be done where the experts are" quoted from Peter Ecclesine.

Hence we should not be scared of standardizing AP to AP protocols, as things have now moved on from TGF. The DS gives us a transport independent mechanism for delivering frames between APs.

AP to AP Communication Motion

Resolved: This group believes that standardization of AP to AP protocols should not excluded from the scope of 802.11

Moved : Mike Moreton
Second : Jon Edney

For: AP to AP communications has been going on for years. What is the problem that is being solved here? Limited scope is not necessarily a bad thing as it can concentrate minds. Is there a strong reason to do this. TGr does have the concept of an AP talking to a new AP, by sending a message from the old AP to the new AP. Mike is asking if we can define this protocol. However, TGr only describes the content of the message, but not the mechanism of how it is sent. For example the medium may be wired or wireless (i.e. we don't know what the PHY is). Hence TGr is not really limited the 'current scope'. If this limitation of scope is taken away, then we'll get L3 VPNs, Brokers etc. This scares me to death.

For : TGr defines a payload, but that's all. The DS concept allows a MSDU to travel from one AP to another AP.

Q : The GPRS stack was developed by systems architects, as opposed to protocol experts. IEEE 802.11 has to sort out the end to end architecture. I am concerned about creating a segmented market of AP to AP communications

For : The GPRS diagram was a horrible hack to get it to work. In the IEEE 802.11 1999 specifications there is a DS, which just allows packets to go from one place to another. This structure was very good at the time. It allows layer 2 frames to travel about.

Q : I disagree with the presenter. The ISO model was to get some organization between different bodies. Layers are like implementation teams working on different sections of the problems. The bits have to get there, and if we have 3 different ways of doing this, it looks bad. I speak in favor of the motion, with a small amendment.

Question : Regarding slide 11 : 3rd item : The DS should deliver SDUs between APs, not frames.
Regarding slide 12 : AP to AP protocols over the DS should not excluded

Darwin Engwer: Move to amend the motion. Second : Mike Moreton.

New motion text

Resolved: This group believes that standardization of AP to AP protocols *over the DS* should not be excluded from the scope of 802.11.

Another friendly amendment. Remove the double negative.

New motion text

Resolved: This group believes that standardization of AP to AP protocols over the DS should be *included* from the scope of 802.11.

Statement: I believe you can do this today, with the DS SAP. The DS is an abstract concept. It's like putting a message on a brick and then throwing it onto a train. The address is written on the brick and it somehow magically arrives at its destination. Perhaps this motion is really talking about SME to SME communication. Additionally there are some people who are currently upset with 802.11 and we have been advised not to define systems. IEEE 802.1 defines networks and 802.11 defines LANS. By the way Annex N now shows a DS diagram with a DS SAP. Architecturally we should be doing a better job. Additionally 802.15 and 802.16 may need this, so perhaps it should be considered at a higher level.

Presenter : More and more we should involve 802.1, and perhaps we should talk to them about this. For example TGr should talk to 802.1 about their AP – AP requirement. However, will we then get them to do work, that we really want to do within 802.11? Perhaps it's better to do it ourselves.

Statement : Yes, the slow response of 802.1 is a big problem. They also have a lot on their plate. Hence this is one of the reasons behind the 802 wireless architecture group.

Presenter : If 802.1 can do this, great. If they cannot, 802.11 should not be excluded from doing it.

Q : What's the output from this motion?
Presenter : I'd like the chairman to mention it during his closing report at the IEEE 802.11 Friday closing plenary.

Q : I think the motion text requires clarification.

Presenter : But the motion does not require anyone to do anything.

Chairman : Friendly amendment to refer to WNG. Question is called.

Motion

Resolved: WNG SC believes that standardization of AP to AP protocols over the DS should be included from the scope of 802.11.

Motion : 27, 0, 12 (Motion Passes)

802.11 MAC extensions for high rate video (11-05-632r1) Clifford Tavares, Tobor Cooksev

More of an information submission, rather than desiring an output. IEEE 802.11e is inadequate for end to end high rate video. Hence submission suggests further standardization beyond 802.11e.

The market is home base entertainment equipment, security video. Video tends to be deterministic, as opposed to essentially random traffic over the internet.

Issues considered are:

- IEEE 802.11e limitations
- Potential solutions : Two dimensional QoS model.
- Current work
- Relevant work within the IETF

Question: But is this within a DS.
A : Yes.

Q : Does this use a new discard priority which does not exist within 11e
A : Yes

Q : In one video stream, you may want high priority frames and frames which can be dropped? Is frame re-ordering be used ? If you use multiple links, then frames could arrive before others depending on which link is being used.
A : Yes, the video is essentially sent in a scrambled order, but within a constrained time frame. But this is a MAC level issue, which must be addressed.

Q : Does packet error rate affect the transmitter power on different links.
A : Yes.

Q : Since the power can be affected over the radio link, doesn't this solution cause problems at the PHY layer.
A : yes, it may.

Q: You talk about end to end QoS, so how do you cope with priorities for the uplink, IP network and downlink (i.e. E2E).
A : This would be covered by the separate protocols on each segment.

Q: What about jitter within the TSPEC.
A: It is not necessary to define it, as delay is there already. Jitter is a separate parameter.

Q : Can not some of these issues be handled above the MAC layer ? Why do you need MAC layer changes.
A : The IP level is not aware of the network conditions, which is very important.

Q: Additionally does the PHY layer need to know about the codec being used?
A: Yes

Q: Why are these extra features required. All these features are already there.
A: The channel adaptation is now based on the content, not just the environment, hence the new QoS dimension, that we are talking about. Channel and content conditions define the QoS.

Q : In MAC and TCP congestion situations, you send slower to avoid it, whilst with some types of radio interference you send faster to increase the probability of success. So is the network being much more intelligent ?
A : Hmm, also interesting to see what TGv can give you, but information cannot propagate all the way back across the E2E connection.

Q : Is the application controlling the E2E or the network itself ?
A : Not sure.

Q : The PHY layers know a lot about the world, but cannot communicate outside of that entity.
A : Exactly, and we would like to move some of this information up to the MAC layer.

Q : Regarding slide 7, doesn't DiffServ do this already?
A : No, it's different as the QoS is within a stream.
Q : Yes, but that's done by the upper layers.
A : Ok. In a 802.11e network there are 8 levels of priority.
Q : It up to an application writer to use these levels wisely.
A : To a certain extent I agree with this, in that it can be done today.
Q : Are we taking about EDC for the 802.11e control mechanism
A : Yes.

Chairman : Thank you Tobor and Clifford. I believe that you will bring another presentation perhaps to the next meeting.

Completion of WNG meeting

Move to adjourn, no objections, session adjourned.

IEEE P802.11
Wireless LANs

Contention-Based Protocol SG SF July Minutes

Date: 2005-07-22

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Abstract

Minutes of the 802.11 Contention Based Protocol Study Group, July 2005, San Francisco, CA

Meeting minutes for CBP SG

- meeting started at 1:30 pm
- 25 attendees, ten indicated that 802.11 is their primary affiliation
- Farooq Bari appointed Recording Secretary
- Review of IEEE policy and rules per 11-05-0751-00-0000-cbp-sg-sf-closing-report.ppt
- Unanimous acknowledgement of IEEE IP Policies
- Agenda:
- *** SG Meeting Call to Order Chair**
- *** Appointment of SG Recording Secretary Chair/All**
- ***Review of IEEE/802 and 802.11 Policies and Rules Chair**
- **DT Approve or Modify Agenda Chair/All**
- **II Chair's Status Update and Review of objectives for the session Chair**
- **DT Set/Review Objectives for the Session, Direction for the Group All**
- **DT Call for Submissions, Presentations Chair**
- **DT Review of WG comments submitted to EC and draft responses All**
- **DT Proposed SG plans All**
- **M Motions for Working Group**
- *** Adjourn Chair 15:30**
-
- Modification to the agenda was suggested by the chair. Because of withdrawal of the CBP PAR, there are no comments from other WGs and responses do not need to be developed. It was decided earlier in the week by 802.11 to recommend to the EC to continue the SG through November.
- Agenda is approved unanimously

Status update by the chair

- FCC published 05-56 Report and Order, – 30 day period for reconsideration petitions closed 10 June, 2005.
- Meeting minutes from earlier telecoms – already reviewed in CBP-SG telecons, except 05/484r0 Cairns meeting minutes and 05/671r0 13 July telecom meeting minutes had not been reviewed.
- No objections to approving all meeting minutes
- 802.11 earlier in the week voted to retract the CBP PAR and 5 criteria and allowing SG to continue through November meeting

This sessions agenda items

No visibility into intentions of FCC. More activity will happen when FCC shows more activity. Dates in PAR document may change.

Call for submissions and presentations

Review WG comments – having none, no action

Motions for the wg

Chair proposes a motion:
"Move to request that the 802.11 working group authorize submission of draft PAR and five criteria draft by WG chair to the Executive Committee before October 15, 2005 for EC approval and forwarding to NesCom, subject to WG reaffirmation vote on Monday of IEEE 802 November plenary."

Delegate asks why a PAR is needed at this point when we just decided not to send it in this meeting. Chair explains the exact wording of the PAR is not included in the motion and it will be up to the study group. FCC may not act immediately and we may not be able to send the PAR in the next session either. 11n was a SG for a year and a half. Proposed to mention "subject to FCC approval" in the motion. SGs

are supposed to expire if they can not come up with PAR criteria. Reason for changing current document 05/565r1, is because the dates will be incorrect

Moved: Scott Blue
Seconded: Keith Amann
Discussion on the motion - none
Yes - 11
No - 1
Abstain - 7

Technical Presentation from .19 chair – Questions to the CBP SG
IEEE 802.19 document 19-05-0023-00-0000-Questions-to-the—CBP-SG.ppt
[It may be updated to show the diaiog with CBP-SG]
The following questions only relate to how FCC rules are written today.

What 802 groups would like to operate in this band?
- 802.11 – seriously interested in meeting FCC rules
- 802.16 – 16 already has some activity in this area that may meet FCC rules in the license exempt group (16 h). FCC may change the name from contention based to co-existence.
- FCC will expect whatever is approved will be able to share with future primary government and non-government users in the band
- FCC will expect whatever is approved need to be able to share with previously approved secondary systems

Does CBP group plan to develop a spectrum sharing technique to enable sharing between multiple 802 wireless systems?
- Current plan is not develop such a technique
- Such a technique may add significant cost
- Should not be frequency specific although FCC today has a specific frequency in mind.
- There may or may not be a broad market appeal for a broader project for 50 MHZ band

Does the CBP SG see multiple working groups developing their own contention based protocols for operating in this band?
- The CBP PAR would enable an extension of 11a or 11n, or other PHY
- 16h could be (made) to use this band.

Possible scope of project
- Amend 802.11 to enable it to operate in the band and meet FCC rules
- Develop a spectrum sharing technique that enables multiple 802 wireless standards to share the band
- Does the group plan to develop an out of band link to resolve a conflict?

Three options were discussed.
The group plans to do option 1.
There is only 50 MHz, so there is a need for spectrum sharing technique.

- Chair shared document NTIA-TR-99-361 on primary NTIA user. Although the current frequency being opened up is small, the potential for other frequencies above 3.1 GHz being also becoming shared is large.

- Meeting adjourned – 3:30 pm

Attendee	Primary Working Group Affiliation
Keith Amann	.11
Farooq Bari	.11
Bjorn Bjerke	.11
Scott Blue	.11
Peter Ecclesine	.11
Lars Falk	--
Mariana Goldhamer	.16
Nada Golmie	.15
David Grandblaise	.16
Wendong Hu	.22
Marc Jalfon	.11
Dale Juenemann	.11
Barry Lewis	.16
Changwen Liu	.11/.19
David Maldonado	.11/.16
Ryoko Matsuo	.11
Akira Miura	.11/.15
William Morse	.11
Paul Piggin	.16
Steve Shellhammer	.19
Masahiro Takagi	.11
Fabian Varas	.11
Steve Whitesell	.11/.19
Aolem Wolisz	--

IEEE P802.11
Wireless LANs

JTC1 SC6 Ad Hoc Meeting Plenary Minutes July 2005				
Date: 2005-07-18				
Author(s):				
Name	**Company**	**Address**	**Phone**	**email**
Sandy Turner	LANL	Los Alamos, NM	505-665-6820	slt@lanl.gov

Abstract

Minutes of the 802.11 JTC1 SC6 Ad Hoc Committee meeting held during the IEEE 802 July 2005 Plenary Session in San Francisco, CA from July 17th – 22nd, 2005.

Monday, July 18, 2005

Call to Order

Meeting called to order on Monday, July 18, 2005 by Jesse Walker at 8:00 am.
Chair: Jesse Walker
Secretary: Sandy Turner

Proposed Agenda

- Meeting Called to Order/Roll Call
- Discuss what we can expect from this upcoming Meeting in Beijing with China and ISO people regarding WAPI
    - Setup other meetings
    - Discussion of goals
    - Work on the presentation
- Adjourn

Chair: Are there any comments to this agenda?

None.

Comment: Any objections to the agenda?

None.

Setup Other Meetings

After discussion, Wednesday at 8, 1:30, 4 and Thursday at 1:30. Meet at the IEEE registration desk.

Discussion of Goals

Key points included:

- Reviewed the latest agenda of the Beijing meeting.
- Agreement that ratifying both is not good for consumers of this technology. Some honest attempt at harmonization is required.
- We need help with the ISO process in the makeup of the delegation. Steve Mills, Chair of the IEEE Standards Board, has agreed to head up the delegation.
- INCITS has offered to form an 802.11 project tag to feed into the JTC1/SC6 Working Group 1.
- Karen Higgenbottom and Phil Wennblom will be representing us at the delegation table. ACTION ITEM: Terry deCourcelle will determine the number of votes for this delegation.
- Six delegates are allowed and an unspecified number of translators. Delegates so far include Steve Mills, Roger Marks, Jesse Walker, Henry Ptasinski, and Andrew Miles. Translators include Alex Chang and Haixiang He. Dorothy Stanley doesn't look like she will get permission to go. There are still 1-2 slots available. Someone with expertise in complex standards meetings would be good. Someone who can speak to the relationship of the IEEE and IETF would be a useful member of the team as well.
- Jesse Walker will mention at the mid-week Plenary and in his closing report that we're still looking for more people.

Work on the Presentation

Key points included:

- This submission is our position paper to the meeting. It has to be submitted in a week so all parties can review the material prior to the meeting.
- Our goal, in order to maintain the integrity of the standard, is a single amendment. The rational is it isn't like the cellular cases, in which you have complete stacks that are not interacting in any way except the same RF bands. If we adopt both, we'll have a broken standard since the editing

instructions will overlap, conflict and be incompatible. We think we should have a single amendment and that the two standards need to be coordinated and constructed in this amendment. Our example is we could take one document as the baseline and make changes from the other document.

- Any technical text, requires time, thorough review and consensus building. The only justification for asking for an extended timeline is that the external review by parties not participating in the design, could not take place in a short time. Security algorithms take time. 11i took four years of consensus building.
- A recurring theme should be the fact that there are missing details in WAPI. Without knowing the full details, industry cannot build a harmonized solution.
- .11 is not the only place security is an issue. There are security issues with .16 as well.
- WEP wasn't the original reason we undertook any of the security work. Jesse Walker was brought in because they wanted to replace the 802.11 authentication mechanisms. The market gave clear guidance not to use it if it was not already deployed. It was then discovered that WEP was broken. The market refused to deploy it unless they used pre-existing authentication methods.
- In 2000-2001, 802.1X was just emerging. There were no EAP methods. 802.1X was chosen because it presented the promise of existing CHAP and all of that. Some have been extended, (e.g. MS-CHAPv2, GSM). The point why this is important is that China has expressed criticism of our approach - that it is not one mechanism and some of the methods are weak. We need to counter that objection by saying, no – there were market requirements and we used these mechanisms as bootstraps to get to better authentication later. There is no one technique the whole market will accept.

Chair: Let's talk about next steps. Dorothy and I will clean up the document, get a document number and put it on the server. If other people have concrete ideas on how to improve the slide deck, let us know. Is there anything else to discuss?

None.

Chair: Would there be any objection to adjourning?

None.

Chair: Hearing none, we are adjourned:
Adjourn
9:57 am

Attendees:

Nancy Cam-Winget
Alex Chang
Terry deCourcelle
Donald Eastlake III
Jon Edney
Fred Haisch
Bob Huang
Steve Mills
Paul Panish
Henry Ptasinski
Toshiyok Sashihara
Dorothy Stanley

Fabrice Stevens
Sandy Turner
Jesse Walker
Ning Zon

References: