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**IEEE P802.11  
Wireless LANs**

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**Tentative Minutes of the IEEE P802.11 Full Working Group**

**July 8 - 12, 2002**

**Hyatt Regency Vancouver, Vancouver, BC, Canada**

**Joint 802.11 / 802.15 Opening Plenary: Monday, July 8, 2002**

**1.1. Introduction**

1.1.1. Meeting called to order by Stuart J Kerry and Bob Heile at 13:00. Agenda of 74th session of 802.11 is in doc.: IEEE 11-02-385r7, including 802.15 and 802.18 RREG TAG.

1.1.2. Secretary – Tim Godfrey

1.1.3. 365 people present. New at this meeting: 43

**1.2. Announcements of policies and rules**

1.2.1. The policies and procedures detailed in document 287r1 are presented by Al Petrick.

1.2.1.1. Officers of 802.11, 802.15, 802.18

1.2.1.2. Voting Rights

1.2.1.3. Attendance

1.2.1.3.1. We do not have the electronic attendance server this week. The chair solicits assistance from anyone with Perl / Linux experience to serve as a backup attendance book server administrator.

1.2.1.4. Logistics

1.2.1.4.1. The 802.11 meetings now break from 5:30 to 7:00PM in the evenings for dinner.

1.2.1.5. Patent Policy

1.2.1.5.1. Members must notify the chairs if they know about any relevant patents.

1.2.1.5.2. IP statements must be filed by companies with IP.

1.2.1.6. Membership / Anti-trust

1.2.1.7. Copyright

1.2.2. Other Announcements

1.2.2.1. Randall Roberts, Terry Cole

1.2.3. Network

1.2.3.1. 802.18 has a folder on Neptune

**1.3. Review of the agenda**

1.3.1. The chair reviews the agenda

1.3.2. Discussion

1.3.2.1. None

1.3.3. The agenda is approved without objection

**1.4. Minutes from previous minutes**

1.4.1. No matters arising from the minutes

## 1.5. Key Working Group Events

### 1.5.1. Interim Meetings

- 1.5.1.1. Sept 9-13, 2002, Monterey California. Hyatt Regency Monterey. Hosted by Cisco Systems group code g-CSCO. Will be our first 802.11a with 802.11b.
- 1.5.1.2. January 13-17, 2003, Ft Lauderdale, FL. Fort Lauderdale Marina Marriott. Around \$125 per night. Hosted by Motorola.
- 1.5.1.3. May 2003 – ETSI meeting in France is not going to work out. We cannot fit into their facilities. An option has come up to meet in Singapore. Pan Pacific Hotel could accommodate our group. We can book it for about \$100 US per night. Swissotel would be \$120-150. Per night.
  - 1.5.1.3.1. Straw poll on meeting in Singapore: 88 In Favor; 65 Opposed; 145 Abstain; 13 want another location.
- 1.5.1.4. Soliciting any other companies that wish to host a meeting for September

### 1.5.2. Report from opening ExCom SEC meeting in July

- 1.5.2.1. Bob Heile presents 802.15 document 02/297r0
- 1.5.2.2. IEEE Canada is meeting this week.
- 1.5.2.3. Board of Governors will meet this week.
- 1.5.2.4. There will be a vote on the 2<sup>nd</sup> vice chair on Friday.
- 1.5.2.5. Trademark policy will be discussed.
- 1.5.2.6. Funds for Get802 have been released to continue the program. There will be a 3 year pilot program. Downloads are running at 40,000 per month.
- 1.5.2.7. Chairs guidelines on OIDs.
- 1.5.2.8. Closing Plenary rules change – moving closing plenary from 3 to 7 on Fridays.
- 1.5.2.9. Working on position for Interim meetings – considering making the rules for Interims the same as Plenaries WRT Quorum

## 1.6. Task Group Reports

### 1.6.1. TGe – John Fakatselis

- 1.6.1.1. Results from LB39. 106 yes (49%), 110 No (51%), 44 Abstain 17%. Total Yes+No is 216.
- 1.6.1.2. We are sorting through comments to see if any are void.
- 1.6.1.3. Discussion
  - 1.6.1.3.1. For LB39, how many valid voters were there? 356.
  - 1.6.1.3.2. How does the vote compare to the last? The previous LB had about 60%.

### 1.6.2. TGf – Dave Bagby

- 1.6.2.1. Recirculation ballot completed before this week
- 1.6.2.2. Planning on going to Sponsor Ballot this week.
- 1.6.2.3. Discussion
  - 1.6.2.3.1. What is the current Yes Vote Percentage? 78%. Not expecting to change during the week.

### 1.6.3. TGg – Matthew Shoemake

- 1.6.3.1. Objective is to continue resolving comments on the optional modes from LB33. Expect to resolve them week, and address other open issues.

### 1.6.4. TGh – Mika Kasslin

- 1.6.4.1. Trying to resolve remaining comments and issue a draft for Letter Ballot.
- 1.6.4.2. Joint meeting with 802.18 tomorrow
- 1.6.5. **TGi – David Halasz**
  - 1.6.5.1. LB35 comments will be addressed. We created draft 2.2 We will start with a review of the new draft. Continuing with comment resolution.
- 1.6.6. **SC WNG – Bruce Kraemer**
  - 1.6.6.1. Two sessions for WNG this week. Will consider and discuss. The WNG has started two new study groups, and they will be status items in WNG. Radio Resource Measurements starts in this session. High Data Rate starts in September.
  - 1.6.6.2. Will discuss BRAN, MMAC, IAG.
- 1.6.7. **Radio Resource Measurements – Harry Worstell**
  - 1.6.7.1. Three conference calls since last meeting. Working on developing PAR. Will elect chair of SG.
- 1.6.8. **802.15.1 – Bob Heile**
  - 1.6.8.1. Standard available, will submit for international standardization.
- 1.6.9. **802.15.2 – Steve Shellhammer**
  - 1.6.9.1. Completed Letter Ballots 802.15 63% approval, 802.11 70% approval.
  - 1.6.9.2. Mac Management has been an issue
- 1.6.10. **802.15.3 – John Barr**
  - 1.6.10.1. LB17 passes 88%. Comments in 802.15:02/300.
- 1.6.11. **802.15.4 – Bob Heile**
  - 1.6.11.1. Letter ballot has completed, comments resolved, hoping to move to sponsor ballot.
- 1.6.12. **SG3a – Rick Roberts**
  - 1.6.12.1. 8 contributions will be presented on Tuesday.
- 1.6.13. **802.18 – Carl Stephenson**
  - 1.6.13.1. This is the official kickoff meeting of the RREG TAG.
  - 1.6.13.2. Participation is needed from all wireless working groups.
  - 1.6.13.3. Output documents from Sydney – filed with FCC, one yet to be filed.
  - 1.6.13.4. Discussion
    - 1.6.13.4.1. Will there be an 802.18 email reflector? 802-stds-regs. Will be aliased to 802.18.
    - 1.6.13.4.2. Web site is still the regulatory. It is not converted to 802.18 yet. An alias will be set up.
- 1.6.14. **Publicity – Brian Matthews**
  - 1.6.14.1. Meeting tomorrow, will receive report from WECA, WiMedia. Meet with IEEE staff on coordination. Working on a plan for an 802.11 workshop event.
- 1.6.15. **802 Coex – Jim Lansford**
  - 1.6.15.1. There have been a number of conference calls with the 802 SEC. There is now a problem statement and scope for the Coex TAG. The TAG will craft operating rules.
  - 1.6.15.2. Procedures and policies will be developed to address coexistence.
  - 1.6.15.3. Documents from prior meetings on VENUS1

## **1.7. Other presentations**

- 1.7.1. 802.16a draft presentation on coexistence – Mika Kasslin.

- 1.7.1.1. Amending the 802.16 standard to cover both licensed and unlicensed bands, including 5GHz.
- 1.7.1.2. 802.16 WG letter ballot closed just before this meeting. 93.1% approval.
- 1.7.1.3. 802.16 is aligning with 802.11a channel plans with 20Mhz channels.
- 1.7.1.4. Coexistence methods. There is an annex of D4 on coexistence and interference. 802.11a WLAN is acknowledged.
- 1.7.1.5. Specific coexistence mechanisms are defined- DFS and TPC are required.

### **1.8. Adjourn the Joint 802.11 / 802.11 session**

## **2. 802.11 Opening Plenary, Monday, July 08, 2002**

### **2.1. Call to Order**

- 2.1.1. The meeting is called to order by Stuart J Kerry at 14:30.
- 2.1.2. The 74<sup>th</sup> session of 802.11
- 2.1.3. The agenda is in 02-385r7. The only change is the movement of the TGh and 802.18 joint session to Tuesday.
- 2.1.4. There are 309 people in the room.

### **2.2. Announcements**

- 2.2.1. Any IP statements for the chair?
  - 2.2.1.1. None
- 2.2.2. Agenda Time limits. 8:00AM to 9:30PM. Hard stop at noon on Friday. Also hard stop on Wednesday at 5:30.
- 2.2.3. Voting Tokens will be distributed this afternoon at task groups.
- 2.2.4. There are two attendance books.
- 2.2.5. There will be another new participants orientation in the Kensington room.

### **2.3. Agenda**

- 2.3.1. The chair reviews the agenda for this session.
- 2.3.2. The agenda is accepted without objection

### **2.4. Minutes of Sydney**

- 2.4.1. Any matters arising from the minutes?
  - 2.4.1.1. None
  - 2.4.1.2. No discussion
- 2.4.2. The minutes are approved without objection

### **2.5. Old Business**

- 2.5.1. Documentation update
  - 2.5.1.1. Review of process on putting document on the web site. They will be on the server within 24 hours. It is OK to call or email to Harry Worstell if they don't show up in that time period. Call Harry if you have time sensitive documents (particularly drafts) . It is also OK to use the email reflector for faster distribution, but no drafts, or larger than 2Mbytes.
  - 2.5.1.2. We don't have full control of the IEEE servers that provide the web site. Security is very critical, since they are for all of 802.

- 2.5.1.3. The CAC supports the work of Harry and his position on posting documents.
- 2.5.1.4. Discussion
  - 2.5.1.4.1. What is the manual process for document numbers?  
Find Harry, give him a paper with author, title, and Task Group.  
He will issue as fast as possible. Outside the meeting, use email.
- 2.5.2. Update on LB40, Operating Rules
  - 2.5.2.1. It closes tonight at midnight.
  - 2.5.2.2. Update in document 02/276r1
  - 2.5.2.3. Current rules are 00/331r2.
  - 2.5.2.4. Votes so far indicate the LB will pass.
  - 2.5.2.5. A group will meet in Kensington this week to review about 100 comments.
  - 2.5.2.6. The new rules will be 00/331r3.
- 2.5.3. Study Group – High Throughput
  - 2.5.3.1. This group can't start until September.
  - 2.5.3.2. Looking for nominations for High Throughput SG chair
    - 2.5.3.2.1. Bruce Kraemer is already nominated (John Kowalski)
    - 2.5.3.2.2. Boyd Bengeter is nominated by Duncan Kitchin.
      - 2.5.3.2.2.1. Is he a voting member? No. Must be a voting member to be an SG chair.
    - 2.5.3.2.3. John Rosdahl is nominated by Dick Ostermiller.
  - 2.5.3.3. Voting will be on Friday.
- 2.5.4. 802.11 Standard Roll-up.
  - 2.5.4.1. We have to update the base 802.11, 11a, b, d, b-cor1.
  - 2.5.4.2. Bob O'hara, Carl Andren will help the IEEE staff to interpret the editorial instructions.
  - 2.5.4.3. Discussion
    - 2.5.4.3.1. What is the involvement of the Task Group once a standard is published? If it is technical, it comes back to the WG.  
The rules say the chairs are bound to maintain standards, and the TG may be reconstituted if necessary.
- 2.5.5. Published standard, Interpretation request.
  - 2.5.5.1. An interpretation was received by the IEEE, and was forwarded to the 802.11 WG to answer the question formally.
  - 2.5.5.2. We have a request from a person in Romania on the RX coordination process and the ATIM frame.
  - 2.5.5.3. We need volunteers to look at the question and prepare a response.
  - 2.5.5.4. Volunteers – Adrian Stephens
- 2.5.6. Web Site
  - 2.5.6.1. The site has been changed to use two frames and drop-down menus.
  - 2.5.6.2. The body thanks Harry for his work in the improvements.

## **2.6. Recess for Subgroups at 3:00PM**

# **3. Mid Week Plenary, July 10, 2002**

## **3.1. Call to Order**

- 3.1.1. The meeting is called to order by Stuart J Kerry at 10:30AM.
- 3.1.2. The agenda is in document 02/385r7

**3.2. Agenda Review**

- 3.2.1. The chair reviews the agenda for this session.
- 3.2.2. New item – update from Assigned Numbers Authority.
- 3.2.3. TGh will have a motion for ANA numbers.
- 3.2.4. Any other new business?
  - 3.2.4.1. None

**3.3. Announcements**

- 3.3.1. Jim Lovett, an early pioneer of the wireless LAN, has died.
  - 3.3.1.1. Larry gives a short speech in memory of Jim Lovett.
- 3.3.2. The sympathy of the WG and the WG chair is extended to the family of Walt Rohr, who died in a diving accident in Sydney.
- 3.3.3. There is a projector #21 missing.
- 3.3.4. Social – the chairs of the groups in the regency ballrooms must end promptly at 5:30PM.
- 3.3.5. We had a meeting Tuesday for Radio Resource Measurement on Tuesday. We were able to find the Oxford room for an Ad Hoc Thursday 1:00PM.
- 3.3.6. Papers were presented at TGe on the subject of FEC. If there are further details on FEC, please make the submissions ASAP. TGe would appreciate that any “No” Voters for LB39 please attend the TGe session today at 3:30-5:30.
- 3.3.7. The chair reminds the body that the nominations for the High Throughput SG are now open. We have two nominees currently – John Rosdahl, and Bruce Kraemer. Nominations will remain open until the vote on Friday at the closing plenary.

**3.4. IP statements**

- 3.4.1. IP statements for TGe, TGi, and TGg have been received from Intersil. They will be posted on the IEEE web site and linked to our site.

**3.5. Attendance**

- 3.5.1. Voting tokens are being distributed. Any discrepancies, see Al Petrick in the Kensington room.
- 3.5.2. The books are going around. We will use the honor system this week. Be sure to sign in sometime, and verify your contact information. The book should be sent around rapidly.

**3.6. Agenda**

- 3.6.1. The agenda is approved without objection

**3.7. Old Business**

- 3.7.1. Operating rules – document 02/459r0. Al Petrick
  - 3.7.1.1. Summary of Letter Ballot 40.
  - 3.7.1.2. 

Count	Percentage
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  - 3.7.1.3. Total Voting Membership: 

356	100%
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  - 3.7.1.4. Total Ballots Returned: 

249	70%
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3.7.1.5.	YES votes	193	83%
3.7.1.6.	NO votes	40	17%
3.7.1.7.	Abstain	16	6%
3.7.1.8.	Required to pass 2/3 majority	166	66.66%
3.7.1.9.	The LB passed with 83%		
3.7.1.10.	Comments are in document 02/460r0		
3.7.1.11.	The new rules document will be 00/331r3.2		
3.7.1.12.	The intention is to come back with a new revision on Friday.		

### **3.8. Announcements**

- 3.8.1. The WG chair states that attendance for 802.11 is granted for attending 802.18
- 3.8.2. The WG chair has assigned Duncan Kitchin to manage the Assigned Numbers Authority.

### **3.9. New Business**

#### **3.9.1. Assigned Numbers Authority**

- 3.9.1.1. Duncan Kitchin presents the status document for the Assigned Numbers Authority.
- 3.9.1.2. Document 02/381r1a is the status presentation.
- 3.9.1.3. The current status is that there are a number of overlapping assignments.
- 3.9.1.4. Requests for numbers come by a motion from the WG or TG. TGh and TGg have already passed motions to request numbers. The TG motion is sufficient.
- 3.9.1.5. The official assignment document is 02/381r1.
- 3.9.1.6. We are short on bits in the capability information field. We have a definition for an extended capability element. We want to make sure the most important capabilities are assigned in the base bitmap.
- 3.9.1.7. Motion: Add to assigned numbers list the following: Reason codes from subclause 7.3.1.7; Status codes from subclause 7.3.1.9; Extended capability field element bits;
- 3.9.1.8. Moved Duncan Kitchin
- 3.9.1.9. Second John Rosdahl
- 3.9.1.10. Discussion
- 3.9.1.11. Where did the extended capability field come from? TGe.
- 3.9.1.12. Vote: Passes 120: 0: 0
- 3.9.1.13. Discussion
- 3.9.1.14. The bit 15 of capability information field is reserved for expansion. Is it needed since there is a new extension element ID? Any list must have the last entry reserved as an escape bit.
- 3.9.1.15. Future sessions will have an ANA report at the first and last session of the week.

### **3.10. Announcements**

- 3.10.1. 802.15.2 will move to apply the resolutions to D05 to forward to recirculation. There will be a request to have another joint 802.11/15 LB.

### **3.11. Recess at 11:00AM**

## **4. Friday, July 12, 2002 Closing Plenary Session**

### **4.1. Opening**

- 4.1.1. The meeting is called to order at 8:00AM by Stuart J Kerry.
- 4.1.2. There are 293 people in the room

#### **4.2. Agenda**

- 4.2.1. The latest agenda is in 02/385r9
- 4.2.2. The chair notes that liaison reports are expected.
- 4.2.3. Fixed time slots for specific group motions
- 4.2.4. Next meeting information has been added to the agenda.
- 4.2.5. Any discussion on the agenda
  - 4.2.5.1. None
- 4.2.6. The agenda is approved without objections

#### **4.3. Announcements**

- 4.3.1. TG chairs are reminded of the CAC teleconferences
- 4.3.2. IP Statements
  - 4.3.2.1. The Intersil IP statements have been posted to the IEEE
  - 4.3.2.2. Are there any other IP statements?
    - 4.3.2.2.1. None
- 4.3.3. IEEE 802.11 standard update
  - 4.3.3.1. The rollup of the main standard. We are forming the ballot pool. Please check the list to see if you are on the list. If you are not, you need to sign up with IEEE SA if you want to be in the pool.

#### **4.4. Documentation Update**

- 4.4.1. Many new submissions. Formatting has been done very well. Attendance / Documentation server still in customs.
- 4.4.2. We thank the volunteers that will help maintain the documentation / attendance server

#### **4.5. TG Reports**

- 4.5.1. TGf – Dave Bagby
  - 4.5.1.1. Report in Document 450r1
  - 4.5.1.2. Sponsor Ballot has been submitted to SEC.
  - 4.5.1.3. Sponsor ballot starts after July Plenary
  - 4.5.1.4. Sponsor ballot review/resolution Sept Interim in Monterey
  - 4.5.1.5. Distinct unresolved technical comments: 86
  - 4.5.1.6. Responses included in comment file submitted with draft to SEC.
    - 4.5.1.6.1. Each resolution approved unanimously as they were processes – see July TGf minutes
  - 4.5.1.7. Some comments requested new functionality and were declined.
  - 4.5.1.8. Goals for September: Review the results of Sponsor ballot & process any comments received.
  - 4.5.1.9. The WG chair notes that we have reviewed the invitation letter for Sponsor Ballot



# 802.11F Meeting Report July 2002

## July 2002 802.11 F Agenda

- Call to order
- Agenda Adoption
  - Administration Stuff
    - Minutes
  - Status / Goals for Mtg
    - Review of meeting purpose
  - New Business

## Agenda adoption

- Moved: to adopt agenda as proposed
  - Moved: Bob M
  - Second: Stuart K
  - Vote: unan

## Admin Stuff

- Matters Arising from the April minutes?
  - none
- Approval of minutes from April
  - Moved: Stuart
  - 2<sup>nd</sup>: Butch
  - Vote: unan

## Goals for July Mtg

- LB 38 passed
  - Which is the 2<sup>nd</sup> time a TGf draft has been approved for sponsor ballot
  - Preparation of the necessary docs for approval by execom to start Sponsor ballot with D3.1 (4.0 = D3.1 w/o change bars)

## Expected TGf schedule

- Sponsor ballot starts after July Plenary
- Sponsor ballot review/resolution Sept Interim in Monterey

## D3.0 vs. D3.1 approval

- Ballot 32 (D3.0) result:
  - Passing: 79.0%
  - Yes: 139, no: 37, abstain: 46
    - Total people voting = 222
    - Yes + no = 176
    - Total Voting Pool = 290
  - Misc. other LB 32 info:
    - Valid vote: over 50% return (78.3%)
    - Abstain level ok: 20.2%
    - Members that did not vote: 63
    - Invalid votes from members: 5
- Ballot 38 (D3.1) result:
  - Passing: 79.0%
  - Yes: 142, no: 37, abstain: 44
    - Total people voting = 223
    - Yes+no = 179
    - Total voting pool = 291
  - Misc. other LB 32 info:
    - Valid vote: over 50% return (76.7%)
    - Abstain level ok: 13%%
    - Members that did not vote: 67

## LB 38 comment summary

- LB 38 generated 8 new technical “no” comments.
  - 2 comments duplicated word for word by two different voters
  - Net result is 6 unique new comments
- Distinct unresolved technical comments: 86

## LB 38 comment summary

- Cmt resolutions from LB32 where commenter not satisfied with resolution (no change to comment):
  - 260, 261, 459, 461, 462
- Two LB 38 comments withdrawn by commenter
  - No seq num as not part of “submitted comments” set
- Declined LB 38 requests for new functionality
  - 488, 492, 477
- Declined LB 38 comments (technical reasons)
  - 480, 481, 482, 484, 484
- Editorials referred to Editor for later incorporation
  - 493-504 inclusive

## Processed new LB 38 comments

- Responses included in comment file submitted with draft to SEC.
  - Each resolution approved unanimously as they were processes – see July TGf minutes

## Voters with unresolved comments – 33

- Adachi, Tomoko (3)
- Barber, Simon (2)
- Bard, Steve (1)
- Bar-Noy, Gil (2)
- Beach, Bob (1)
- Cam-Winget, Nancy (2)
- Chesson, Greg (1)
- Choi, Sunghyun (8)
- Ciotti, Frank (3)
- Cooklev, Tudor (1)
- Davis, Barry (1) (voted yes but late)
- Green, Evan (1)
- Hayes, Kevin (4)
- Jalfon, Marc (2)
- Kandala, Srinivas (3)
- Kowalski, John (2)
- Lefkowitz, Martin (3)
- Meier, Bob (4)
- Mishra, Partho (3)
- Moore, Tim (2)
- Myles, Andrew (2)
- Raissinia, Ali (1)
- Rettig, Dany (2)
- Richkas, Dave (2)
- Sanwalka, Anil (8)
- Smith, Dave (2)
- Stephens, Adrian (10)
- Texerman, Yossi (2)
- Tsien, Chih (2)
- Wakeley, Tim (2)
- Walker, Jesse (24)
- Zorn, Glen (1)
- Zwemmer, Arnoud (4)

## 4 No voters w/o unresolved comments.

- These people did not respond to LB 38:
  - Skellern, Dave
  - Somayazulu, Srinivasa
  - Van Nee, Richard
  - Young, Albert
- So their vote stayed the same, but TGf does not know what their objections are since all their comments were resolved.

## Status

- Draft 3.1 & unresolved comment file was submitted to SEC for approval to start Sponsor Ballot.

## July output docs

- 11-02-449r0-F-Minutes\_of\_TGf\_July\_2002
- 11-02-451R1-f-unresolved LB 38 comments (sort Type clause comment)
- 11-02-451R1-f-unresolved LB 38 (New Tech ONLY) comments (sort Type clause comment)
- 802.11F-D4 (D3.1 w/o revision marks)
- 11-02-450r1-F-Report of the July TGf meeting

## Goals for Sept 2002

- Review the results of Sponsor ballot
  - & process any comments received

## Motion to Adjourn

- End of agenda reached – mtg adjourned.



End of report

4.5.2. TGh – Mika Kasslin

4.5.2.1. Report in 479r0

4.5.2.2. At the start of the meeting there were 250 comments to resolve.

4.5.2.3. Continued comment resolution – more than half were accepted.  
Results in spreadsheet.

4.5.2.4. Approved 802.11h-d2.1 as a draft

4.5.2.5. Objectives for Sept– process comments to recirculation ballot.

4.5.2.5.1. Discussion

4.5.2.5.1.1. Can you check and see what the rules are for changing votes after a recirculation – it may be too late to change votes and have a recirculation. The WG chair suggests to check the LMSC rules and Standards Companion

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July 2002

doc.: IEEE 802.11-02/479r1

## TGh Closing Report

Mika Kasslin  
TGh chair

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Submission

Slide 1

Mika Kasslin, Nokia

## TGh Agenda (02/397)

- 11 meeting slots reserved, finally used 10 of them
  - A joint meeting with 802.18 TAG
  - LB#36 comment resolution
    - LB#36 results: 140 Yes, 77 No, 53 Abstain
- Meeting minutes in 02/435

## Joint Mtg with R-Reg

- Presentation about Harmonized Standard status after BRAN#29 (02/445)
- Report on ITU-R and WRC 2003 preparations

## LB#36 Comment Resolution In the Beginning

- From Sydney still over 250 comments out of 675 unresolved
- Mid June a submission from the co-editor with suggested resolutions (02/396r0) and associated changes to the draft normative text (02/402r0) were published
  - Request to review the submissions and submit comments

## LB#36 Comment Resolution The Process in Vancouver

- On-line review of the draft normative text
- Comment spreadsheet review in ad-hoc groups
- Hard off-line review providing comments to the editor
- Presentations
  - 02/392: IBSS TPC Issues
  - 02/390: Spectrum Capability Extensions for Power Sensitive Devices
  - 02/462: Backwards/Forwards compatibility for 11h

## LB#36 Comment Resolution At the End

- Last of the comments resolved on Thursday afternoon
- Comment resolution spreadsheet and new draft finalized

Status	Comments	
Deferred	0	0%
Accepted	402	60%
Clarification	34	5%
Declined	208	31%
No longer relevant	24	4%
Withdrawn	7	1%
<b>Total</b>	<b>675</b>	<b>100%</b>
Total comments	675	

## Comment Resolution Motions

TGh approved unanimously document 802.11h D2.1.32 as a draft (21/0/1)

TGh approved unanimously document 02/396r1 as a comment resolutions from letter ballot 36 (22/0/1)

TGh directed unanimously the chair to prepare a motion for the closing plenary to conduct a working group letter ballot or recirculation ballot on 802.11h D2.1.32 (21/0/1)

## Vote Status on July 11

- 27 No voters were ready to change their vote to Yes
  - Approval ratio over 75% and new draft can be submitted to recirculation ballot

	YES	NO	ABSTAIN		
<b>Original</b>	140	77	53		64.50%
<b>Now</b>	167	50	53		76.95%

## September 2002 Objectives

- Process recirculation ballot comments
  - Submit a revised draft to recirculation ballot if possible
- Update on progress in related matters (jointly with 802.18 TAG)

## TGh Update

TGh had a successful meeting with two agenda items and minuted in 02/435. We met all the objectives and most importantly took a long step forward towards Sponsor Ballot by approving a revised draft to WG recirculation ballot.

Most of the week we continued resolving comments from LB#36. The group reviewed thoroughly the comment spreadsheet (02/396r0) and associated draft normative text proposal (02/402r0) which both were submitted by the TGh co-editor well before the meeting. At the end of the meeting the group had resolved all the 675 comments and unanimously adopted resolutions in 02/396r1 and document 802.11h D2.1.32 as draft. By the end of the meeting 27 of the members who voted No in LB#36 accepted the resolutions and changed their vote to Yes, which resulted in approval ratio of 76.9% (Yes 167, No 50). This allowed the group to take a long step forward in the standard process and submit a new revised draft to recirculation ballot.

Additionally we hold a joint meeting with IEEE 802.18 TAG to review the recent progress in WRC 2003 preparations under agenda item 1.5 and to hear a presentation (02/445) about Harmonized Standard (EN 301 893) status.

The objectives of the September 2002 meeting are to process recirculation ballot comments and submit a revised draft to 2nd recirculation ballot if so possible and needed. Further, the group will hear update on related matters like WRC 2003 preparations in ITU-R.

4.5.3. TGg – Matthew Shoemake

4.5.3.1. Report in Document 491

- 4.5.3.1.1. Continued to resolve comments
- 4.5.3.1.2. Resolved all comments on LB33
- 4.5.3.1.3. Status of draft – the draft was updated to version 2.9.
- 4.5.3.1.4. Current version is draft 3.0. There were no further comments
- 4.5.3.1.5. A motion was passed unanimously to issue a WG letter ballot on 802.11g draft 3.0
- 4.5.3.1.6. Goals for September – review results of letter ballot, begin comment resolution.
- 4.5.3.1.7. Suggest to review wording to call the draft an “amendment”

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July 2002

doc.: IEEE 802.11-02/491r0

# TGg Report to the IEEE 802.11 Working Group

Matthew B. Shoemake  
TGg Chairperson  
July 12, 2002

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Submission

Matthew B. Shoemake, TGg Chairperson



## Letter Ballot #33

- Resolved **all** comments on letter ballot #33
- Comments resolutions are found in document 11-02-209r13

## TGg Draft

- Upon completion of resolution of LB#33 comments, updated the draft to 2.9 and review in TGg
- Made a small number of further modifications and updated TGg draft to version 3.0
- Draft 3.0 was reviewed on Thursday the 11<sup>th</sup> of July by the Task Group at which time no TG members submitted further comment on the draft

## Motion in TGg

Move to request that the IEEE 802.11 WG issue a working group letter ballot on Draft 3.0 of the IEEE 802.11g standard.

Coffey/Terry

Passed unanimously

## WG Motion

Per Procedure 10 of the LMSC rules (Rev. Nov. 12 2001), move to issue an IEEE 802.11 Working Group electronic letter ballot on Draft 3.0 of the IEEE 802.11g amendment to the IEEE 802.11 standard.

Shoemake on behalf of Task Group G

## Goals for September 2002

- Review results of electronic letter ballot on draft 3.0 and begin comment resolution
- Conduct joint meeting with IEEE 802.18 Regulatory TAG

## 4.5.4. TGi – Dave Halasz

- 4.5.4.1. Report in Document 02/472r0
  - 4.5.4.1.1. Biggest issue was the mode of AES. Brought in CCM to be normative and mandatory. OCB will be optional.
  - 4.5.4.1.2. Issues with random numbers, security and fast roaming.
  - 4.5.4.1.3. Ad Hoc in San Jose in August
  - 4.5.4.1.4. Working to coordinate with the maintenance PAR
  - 4.5.4.1.5. Discussion
  - 4.5.4.1.6. Why is the OCB mode optional and non normative. It is normative.
  - 4.5.4.1.7. Is it the groups intent to complete processing of comments from the last LB before the next LB? Yes, the group decides.
  - 4.5.4.1.8. Cannot find a specific list of comments that are resolved, only by topic.
  - 4.5.4.1.9. We don't want to go through the whole list of comments.
  - 4.5.4.1.10. It is not a requirement to resolve every issue before another LB. We can disagree that it is an issue.
  - 4.5.4.1.11. We are not planning on having any official motions at the Ad Hoc.
  - 4.5.4.1.12. Why do you chose an Ad Hoc instead of an Interim? The tradition is that interim meetings of a TG outside the WG interims are Ad Hocs.
- 4.5.4.2. The WG Chair notes that the TG chairs should empower their work in the September Interim.

## TGi Final Report for the July 2002 Session

July 12, 2002

## TGi Final Report for the July 2002 Session

- Motions

- Incorporate the draft text from document 02/144r1, "Proposed TGi D1.9 Clause 8 AES-CTR CBC-MAC (CCM)" into the current TGi draft with the following instructions to the editor:

- 1) The CCM mode is normative and mandatory
- 2) The existing OCB mode remains normative and unchanged and becomes optional

Vote: 67-1-6 Passed

## TGi Final Report for the July 2002 Session

- Motions

- Instruct the editor to incorporate the changes specified in 02/144r4 into Draft 2.2

- QOS traffic class included in the MIC
- QOS TC extended by 4 bits to provide 48-bit sequence counter for each QOS traffic class.
- Removed Duration word from MIC
- Add CCM test vectors
- Figure 3 arrow fix

Vote: 32-4-7 Passed

## TGi Final Report for the July 2002 Session

- Submissions
  - 02/447: IBMs AES-OCB Licensing
  - 02/412: Directed traffic (side channel) Security Options and Notes
  - 02/393: IBSS Solution with 802.1X
  - 02/477: Proposal for Informative Schemes for Generating Randomness
  - 02/389: IEEE 802.1x Pre-Authentication
  - 02/453: What is missing from the Standards Process?

## TGi Final Report for the July 2002 Session

- Ad-Hoc meeting
  - Ad-Hoc meeting in San Jose, CA on August 13<sup>th</sup> – 15<sup>th</sup>
  - Review comments not addressed
  - Work towards resolution proposals
  - Review draft

## Next meeting objective

- Optimistic to reach draft 3 in Monterey meeting and go to letter ballot.

## Summary

IEEE 802.11i continued comment resolution of Letter Ballot 35. The issue with the largest number of letter ballot comments resolved with an AES mode motion. Working to resolve remaining issues and to increase coordination between 802.11a and 802.11i.

### 4.5.5. WNG – Bruce Kraemer

- 4.5.5.1. Report in Document 469
- 4.5.5.2. A resolution approach from longstanding issue with ETSI. WIG proposal from ETSI
- 4.5.5.3. Had technical proposals on MAC efficiency.
- 4.5.5.4. There is an opportunity to re-band 802.11a to take advantage of Japanese spectrum.
- 4.5.5.5. Objectives for Monterey – host WIG meeting prior to IEEE. Create PAR to add Japanese Bands. Activity reports from ETSI, MMAC, IAG.

UWB Channel Model presentation from SG3A. Discuss future WLAN directions & priorities.

4.5.5.6. Need to make changes to PAR and 5 criteria to support extending 5GHz band for Japan. Passed unanimously. Will bring to WG. Will bring to SEC in November.

4.5.5.7. Discussion

4.5.5.7.1. Document 476 will be on server.

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July, 2002

doc.: IEEE 802.11-02/469r0

## WNG Closing Plenary Report

Vancouver, BC  
July 2002

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Submission

Slide 1

Bruce Kraemer, Intersil

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July, 2002

doc.: IEEE 802.11-02/469r0

## Vancouver Objectives

- ✓ Status of SG spin outs
  - Radio Resource Measurement
  - High Throughput
- ✓ Updates from Bran #29, MMAC, IAG
- ✓ Invitation to Host Joint WIG meeting in Monterey- Accepted
- ✓ Two Presentations on MAC efficiency
- ✓ Radio Regulatory joint meeting
  - ✓ Preemptive move to address Japanese band allocations
- ✓ The next priority discussions

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Submission

Slide 2

Bruce Kraemer, Intersil



## WIG Scope

Draft proposal (*The wording is by no means the final proposal*)

- To be an integral part in the production of a generically applicable interworking standard for WWAN and other public networks. The standard is to be applicable for IEEE 802.11 family, MMAC HiSWAN family, and ETSI HiperLAN/2
- To be the point of resolution for ETSI, IEEE and MMAC on issues related to interworking with WWAN and other public networks.
- To be the single point of contact for the above mentioned WLAN standards on questions related to interworking with WWAN and other public networks.

## WNG Objectives for Monterey

- Host WIG meeting as proposed by ETSI
- Facilitate PAR for adding Japanese 5 GHz bands
- Activity reports from ETSI, MMAC, IAG
- UWB Channel Model presentation from SG3A
- Discuss future WLAN directions & priorities

## Key Presentations

WNG Committee Report 02/468r1  
WNG Closing Report 02/469  
WIG Report 02/419  
IAG Report  
Japanese Band 02/480  
Yasuhiko Inoue, NTT 02/446r0  
“Discussions on the Access Control Mechanisms for WLAN NG”  
Pek-Yew Tan, Panasonic 02/481r0  
“Overheads in Data Streams over WLAN”

## Summary

- **Make small changes to 802.11, .11a and .11d to meet Japan’s proposed regulatory requirements for low-band 4.9-5GHz operation**
- **PAR/5 Criterion preparation does not appear to warrant formation of a Study Group, but should developed to be submitted to the 802 exec before November 802 Plenary.**

## The WNG Motion

**Move to investigate and to draft a PAR and Five Criteria to extend 802.11, 802.11a and 802.11d, as necessary, to the Japanese 4.9GHz-5GHz bands in the next ninety one days**

**Approved unanimously: (90/0/0)**

The WNG motion: to bring the following motion to the WG

**Move to empower WNG to investigate and draft a PAR and Five Criteria to extend 802.11, 802.11a and 802.11d, as necessary, to the Japanese 4.9GHz-5GHz bands,**

**and after a Working Group confirming vote in the September 802.11 interim meeting,**

**empower the Working Group to forward them for approval at the November 2002 IEEE 802 Plenary**

**Approved unanimously: (90/0/0)**

- 4.5.6. Publicity SC – Brian Matthews, Jim Meyer
  - 4.5.6.1. Report in 02/454r1
  - 4.5.6.2. Had WECA update from Dennis Eaton. SSN interim security initiative.
  - 4.5.6.3. WiMedia – similar to WECA but for 802.15
  - 4.5.6.4. Coordination with IEEE Staff re newsletter, guidelines
  - 4.5.6.5. Communication with media and industry analysts was discussed.
  - 4.5.6.6. Discussion
    - 4.5.6.6.1. none

July 2002

IEEE doc: 11-02-454r1

## Publicity Committee 802.11/15

Brian Mathews, PC Chair 802.11  
Jim Meyer, PC Chair 802.15

Submission Slide 1 Brian Mathews - AbsoluteValue Systems / Jim Meyer - TimeDomain

July 2002

IEEE doc: 11-02-454r1

## Agenda

AGENDA - IEEE 802.11 Publicity Ad-Hoc MEETING					
July 8-12, 2002					
Vancouver, British Columbia					
Tuesday, July 9, 2002 -10:30 AM - 12:00 PM					
1	II	Meeting Call to Order	-	MATHEWS	0 10:30 AM
2	DT	Review Objectives	-	MATHEWS	5 10:30 AM
3	DT	Report from WECA	-	EATON	15 10:35 AM
4	DT	Introduction to WiMedia	-	MEYER	5 10:50 AM
5	DT	New Activity - meet with IEEE staff	-	MATHEWS	20 10:55 AM
6	DT	Develop plan for future IEEE 802.11 workshop event	-	MATHEWS	15 11:15 AM
7	DT	Media Analyst list update	-	MATHEWS	10 11:30 AM
8	DT	Summary reporting for media and IEEE press announcements	-	MATHEWS	20 11:40 AM
9	DT	Ajourn for the session	-	MATHEWS	12:00 PM
		ME - Motion, External		MI - Motion, Internal	
		DI - Discussion Topic		II - Information Item	

Submission Slide 2 Brian Mathews - AbsoluteValue Systems / Jim Meyer - TimeDomain

## Meeting Objectives

- Report from WECA
- Joint 802.11/.15 Publicity committee New Activities – meet with IEEE staff
- Develop plan for IEEE802.11 Workshop event
- Develop procedure for accurate and timely summary reporting for media & analysts
- Update Conference Calendar
- Media Analyst list update

 - Reviewed and completed

## Publicity Committee

- Chartered as a joint ad-hoc group under the chairs of 802.11 and 802.15 to generate a common theme and joint publicity documents, press announcements, recommendations to the WG, IEEE etc... of the technical accomplishments, and issues resulting from the interim and plenary sessions as well as address external issues which are directly related to the development of 802.11 and 802.15 standards.
  - This information is posted on the 802.11/.15 websites
  - Used by the WG chairs and vice-chairs for communication to media, press and media analysts, IEEE staff and affiliated industry bodies
- Everyone can vote and participate in straw polls, motions, debates and discussions
- 14 people in attendance at the Vancouver PC meeting

## WECA Update

(presented by Dennis Eaton)

- Key announcements from June Member Meeting in Miami
  - WECA intends to change its name to Wi-Fi Alliance
  - New branding plan was announced
  - SSN submitted and accepted as candidate for interim security initiative



The Wi-Fi certified logo will be used for 802.11b and 802.11a...



... Along with a capabilities label to show product certifications

## WECA Status (Cont.)

- Successful tradeshow at N+I – Tokyo
  - Interviews and press conference with many Japanese
  - 12 companies participated in pavilion
  - Areas of primary interest continue to be (in priority order)
    - Wi-Fi in hot spots
    - 802.11a certification
    - Security
- Completed second round of 802.11a interoperability testing at end of May
  - Expect third round to be in August
  - Anticipate test bed in place and formal certification starting closely thereafter
- Next Member's meeting Sept 24 – 26, Rome, Italy
- Next Trade Show – Nov 18 - 22, Comdex, Las Vegas
- 370+ certified products and growing steadily

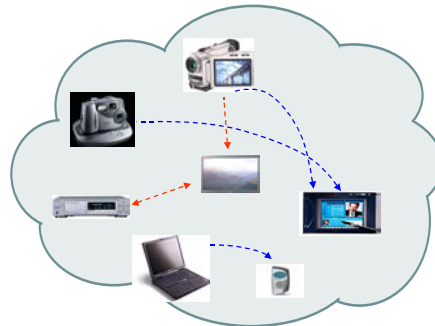
# WiMedia Alliance

A Preview for IEEE Members

July 7, 2002

## Mission Statement

“To promote wireless multimedia connectivity and interoperability between devices in a personal area network.”



## Technical History

- WPAN SG formed March '98 by IEEE 802.11 WG to investigate need for a supplemental wireless network standard
  - **Specifically targeted to provide very low power consumption, low complexity, wireless connectivity among devices within or entering a Personal Operating Space (POS)**
- 802.15 Working Group for Wireless Personal Area Networks WPANs™ formed March '99
- P802.15.3 High Rate (HR) Task Group (TG3) for Wireless Personal Area Networks (WPANs™) chartered March 2000 to draft and publish a new standard for high-rate (20Mbit/s or greater) WPANs™
  - **Provide for low power, low cost solutions addressing the needs of portable consumer digital imaging and multimedia applications.**

## Business Purpose

- **Define, establish and support one or more specifications that provide for wireless multimedia connectivity and interoperability between devices for personal use in a networked environment (e.g. PAN)**
- **Provide a neutral forum for enhancement and augmentation of the standards**
- **Foster the rapid adoption of these specifications and standards by developers of related products and services**
- **Create & enforce product certification criteria for multi-vendor interoperability**
- **Educate businesses and consumers about the benefits and applications for wireless multimedia products in a personal network**
- **Establish liaisons with other organizations that develop specifications and standards for wireless products**
- **Foster competition in development of products and services and comply with all antitrust laws**



## IEEE Staff Discussion

- Jerry Walker & Jennifer Longman attended
- Roger Marks of 802.16 will continue as central point for submitting text for inclusion in the IEEE802 newsletter
- Goal is to post the newsletter after each Plenary meeting
  
- Guidelines for how to refer to the IEEE and 802 in marketing materials are on the IEEE web site under “Newsroom” (<http://standards.ieee.org/announcements>)  
PLEASE REFER YOUR MARKETING PEOPLE TO THIS

## Communication with media and industry analysts

- Suggestions:
  - 802.11/.15 could offer speakers to present at industry events
  - Hold press/analyst briefing in conjunction with an industry event
  - Hold press/analyst briefing in conjunction with an 802 session
  - Conference Call briefing for key members of press & industry analysts shortly after each meeting
  - Set up an 802.11/.15 Workshop event specifically to educate press/analysts about .11/.15
  
- Straw poll overwhelmingly supported holding a Conference Call after IEEE802.11/.15 meetings

## Post Session Media/Analyst Conference Call

- **When?** Soon after session, e.g. Wed. of following week
- **Who?** WG Chairs, PC Chairs, possibly some TG Chairs, IEEE Marketing Staff/PR, invited media/press/analysts (need to refine our list)
- **What?** Content would be review (paraphrase) of summary report generated from WG Closing Plenary reports and then possibly Q&A (if manageable on a large call)
  - Summary report (oriented for press/media & analysts) available on web site or via e-mail in advance of call
- **How?** Must determine if IEEE has conference call capability already in place to support this and cost

## Communication with media and industry analysts

- Key is getting accurate and timely summary information from WG Chairs
- Suggestion was made to develop a short list of questions WG Chairs should try to answer in their summary reports
- Remainder of PC meeting was spent developing a preliminary list of questions

## Communication with media and industry analysts

- Brainstorm list of questions to be addressed in summary report
  - What was accomplished at the meeting?
    - What major objectives were resolved
    - What objectives remain?
    - What are the key objectives for the next meeting?
  - What is the next major milestone in the IEEE process?
  - When will it occur?
  - When will the standard approved by the IEEE?
  - Were their any major proposals?
  - Who made the proposal?
  - Were any important options ruled out?
  - How many presentations were made? Who's making them?
- List to be reviewed with IEEE staff and WG /TG Chairs

## Media/Analyst List

Update July 2002				
Company/Journal	Key Contact	Phone	Email	
Allied Business	Navin Sabhanwal, Research Director	516-624-3113 X20		
ChipCenter	Lee Goldberg, Senior Technical Editor	609-720-0014		
CommsDesign	Rob Keenan, Editor-in-Chief			
Dataquest	Joe Byrne, Principal Analyst			
Dataquest	Stan Brueeule, Principal Analyst			
EE Times & CSD	Patrick Mannion, Senior Editor & Editor-in-Chief	516-562-5060		
Electronic Buyers News	Darrell Dunn, Assistant Managing Editor	817-485-2995		
FarPoint Group	Craig MathiasPrincipal	508-881-6467		
IDC	Ken Furer, WLAN IC Analyst			
ISD	Ron Wilson, Editorial Director	750-996-1992		
Microwaves & RF	Jack Browne, Editor-in-Chief			
Nikkei Electronics	Rocky Aida, Technology Editor			
Planet802.11	Matthew Peretz, Managing Editor	203-662-2886		
Portable Design	Rich Nass, Editor-in-Chief			
Semico Research	Bob Merritt, Director of Emerging Markets			
Wireless System Design	Cheryl Ajluni, Editor-in-Chief	408-776-2934		

## Meeting Objectives for September

- Review July newsletter and TG Chair summaries
- Report from WECA & WiMedia
- Preparation for post-meeting Conference Call
  - Review list of invited press/analysts, verify invitations
  - Review strawman pre-drafted summaries
  - Verify conference call arrangements
    - Date/Time
    - Call-in number
    - Procedures

## Summary of Activities July 2002

- IEEE 802.11/.15 Publicity Standing Committee
- July 9, 2002 – Vancouver
- Summary of Activities and Future Plans
  - The Publicity Committee (PC) held one meeting for the week of May 12, 2002, chaired by Brian Mathews PC Chair 802.11 and Jim Meyer PC Chair for 802.15. Dennis Eaton, WECA chair, provided an update on new developments at WECA. New name, branding plan, 802.11a interoperability testing status, and N+I Tokyo were the highlights. Jim Meyer presented a brief introduction to WiMedia, an industry organization to promote certain 802.15-based products. Discussed Marketing Communication procedures with IEEE staff. This led to discussion of how to better communicate with trade press and industry analysts. Consensus is that a conference call following each 802.11/.15 session would be highly beneficial. This will be proposed to the .11/.15 WG Chairs. Key to better external communications is getting accurate and timely summary reports from TG Chairs. Remainder of meeting was spent generating a list of questions the TG Chairs should try to answer in their Closing summary reports.  
At the IEEE 802.11/.15 interim session in September the PC plans to prepare for and coordinate the first Trade Press/Analyst Briefing Conference Call.

4.5.7. RRM SG – Harry Worstell

- 4.5.7.1. Report in document 02/489r0
- 4.5.7.2. Richard Paine was elected chair of SG, will be confirmed by motion in WG. Harry Worstell was elected Secretary.
- 4.5.7.3. Continued to work on text for PAR and 5 criteria.
- 4.5.7.4. There will be conference calls – first Wed of August, every Wed until Sept meeting. 11:00AM Eastern.

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July 2002

doc.: IEEE 802.11-02/489r0

## Radio Resource Measurement

### Closing Report to the Working Group July 2002 Session

Harry Worstell, AT&T  
Acting Chair

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Submission

Slide 1

Harry Worstell, AT&T

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July 2002

doc.: IEEE 802.11-02/489r0

1. Richard Paine of Boeing was elected Chair of the Study Group by acclamation
2. Elected Harry Worstell as Secretary of the Group by acclamation
3. Continued generating text for a PAR and 5 Criteria
4. Presentation by Simon Barber
5. Presentations by Richard Paine
6. Discussed procedures and scope
7. Set time and Dates for Conference calls until next meeting

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Submission

Slide 2

Harry Worstell, AT&T

Motion:

Move to affirm Richard Paine as  
Chair of the Radio Resource  
Measurement Study Group

Motion:

Move to empower RRM-SG to hold an interim meeting in September 2002, conduct teleconferences, process a PAR and 5 Criteria and consequently submit the PAR and 5 Criteria to the Working Group at or before the November 2002 IEEE 802 plenary to start a Task Group

4.5.8. TGe – John Fakatselis

- 4.5.8.1. Report in Document 02/492
- 4.5.8.2. Letter ballot 39 results 106/110/44
- 4.5.8.3. New draft being generated is 3.2
- 4.5.8.4. Intent of the group is to continue to solicit conversion of the no votes to yes votes from no voters.
- 4.5.8.5. Discussion
  - 4.5.8.5.1. The WG Chair requested procedure 10 to be read to the group for letter ballot procedures.
- 4.5.8.6. Announcement
  - 4.5.8.6.1. Sunghyun Choi is going on an assignment teaching in Korea and will be leaving the group. The WG chair recognizes his contributions to the group and thanks his help.

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July, 2002

doc.: IEEE 802.11-02/492

## 802.11e Vancouver meeting

07/12/02

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Submission

Slide 1

John Fakatselis, Intersil

## LB #39 Results (tentative)

YES	106	49%
NO	110	51%
Abstain	44	17%
TOTAL VOTES	260	
YES plus NO	216	

-Confirmation of voting rights not complete yet.

## Accomplishments

- Approved changes to create new version of Draft 3.2



## Objectives Next Meeting

- Attempt a 75% approval of LB #39 through vote conversion.
- Continue Comment resolution process.
- Issue an updated draft based on comments resolved

### 4.6. *Liaison Reports*

#### 4.6.1. 802..11 ↔ 802.1 - David Halasz

4.6.1.1. Report in document 02/487

4.6.1.2. Attempting to gain cross voting rights between the two WG. A maximum of 5 people from each group.

## 802.1 Liaison Report for the July 2002 Session

July 12, 2002

## 802.1 Liaison Report for the July 2002 Session

- 802.1aa maintenance PAR for 802.1X
  - Changed state diagram
  - 802.11 Key Descriptor Index
- Working towards more coordination between 802.1 and 802.11i

## 4.6.2. 11 ↔ 15 – Michael Seals

- 4.6.2.1. Report in 485r0
- 4.6.2.2. Status onTG2
  - 4.6.2.2.1. Continued comment resolution.
  - 4.6.2.2.2. AFH (adaptive frequency hopping) and EV3 (a packet type) sections of the draft were made informative.
  - 4.6.2.2.3. Seven 802.15 “No” votes were converted to “Yes” giving approval rate of 75,8% in 802.15.
  - 4.6.2.2.4. Four presentations were given in TGe to address concerns on AWMA (alternating wireless medium access).
- 4.6.2.3. TG3
  - 4.6.2.3.1. Ballot Review Committee formed for comment resolution.
  - 4.6.2.3.2. Comment resolution on first recirculation ballot (LB 17)
  - 4.6.2.3.3. A new compromise on security was passed including RSA as an option.
- 4.6.2.4. TG4
  - 4.6.2.4.1. Comment resolution on second recirculation ballot (LB 18).
  - 4.6.2.4.2. All TRs addressed, about 400 editorial comments still open.
- 4.6.2.5. SG3a
  - 4.6.2.5.1. General
  - 4.6.2.5.2. This SG is exploring alternative PHYs to the 2.4 GHz PHY in the TG3 draft
  - 4.6.2.5.3.
  - 4.6.2.5.4. This Week
  - 4.6.2.5.5. Heard 8 proposals for UWB channel models.
  - 4.6.2.5.6. Continued work on the selection criteria document.
  - 4.6.2.5.7.
  - 4.6.2.5.8. Next Steps
  - 4.6.2.5.9. Continue refinement of the selection criteria and technical requirements.
  - 4.6.2.5.10. Conference calls to continue work on developing a UWB channel model.
  - 4.6.2.5.11. Conference calls to continue work on Selection Criteria.
  - 4.6.2.5.12. Progress is dependent upon the approval of the TG3 MAC.

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July 2002

doc.: IEEE 802.11-02/485r0

**Project: IEEE P802.11 Working Group for Wireless Local Area Networks (WLANs)**

**Submission Title:** 802.15 Liaison Report, July 2002

**Date Submitted:** 12 July 2002

**Source:** Michael Seals, Intersil  
Address 2401 Palm Bay Rd NE, Palm Bay, FL 32905  
Voice: 321 724 7172, FAX: 312 724 7094, E-Mail: mseals@intersil.com

**Abstract:** This document highlights the actions taken by the IEEE 802.15 WG during the July 2002 Plenary meeting in Vancouver, Canada

**Purpose:** Liaison report

**Notice:** This document has been prepared to assist the IEEE P802.11. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

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Submission

Slide 1

M. Seals, Intersil

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July 2002

doc.: IEEE 802.11-02/485r0

## TG2 Status

### This Week

- Continued comment resolution.
- AFH (adaptive frequency hopping) and EV3 (a packet type) sections of the draft were made informative.
- Seven 802.15 “No” votes were converted to “Yes” giving approval rate of 75,8% in 802.15.
- Four presentations were given in TGe to address concerns on AWMA (alternating wireless medium access).

### Next Steps

- Begin recirculation ballot in 802.15 after this meeting.

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Submission

Slide 2

M. Seals, Intersil

July 2002

doc.: IEEE 802.11-02/485r0

## TG3 Status

### This Week

- Ballot Review Committee formed for comment resolution.
- Comment resolution on first recirculation ballot (LB 17)
- A new compromise on security was passed including RSA as an option.

### Next Steps

- Continue comment resolution
- Complete sponsor ballot pool selection
- Prepare a white paper on coexistence based on Annex D of the draft

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Submission

Slide 3

M. Seals, Intersil

July 2002

doc.: IEEE 802.11-02/485r0

## TG4 Status

### This Week

- Comment resolution on second recirculation ballot (LB 18).
- All TRs addressed, about 400 editorial comments still open.

### Next Steps

- Begin third recirculation ballot.
- Anticipate sponsor ballot after September Meeting

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Submission

Slide 4

M. Seals, Intersil

## SG3a Status

### General

- This SG is exploring alternative PHYs to the 2.4 GHz PHY in the TG3 draft

### This Week

- Heard 8 proposals for UWB channel models.
- Continued work on the selection criteria document.

### Next Steps

- Continue refinement of the selection criteria and technical requirements.
- Conference calls to continue work on developing a UWB channel model.
- Conference calls to continue work on Selection Criteria.
- Progress is dependent upon the approval of the TG3 MAC.

#### 4.6.3. 802.11 ↔ 802.18 – Dennis Kuahara

##### 4.6.3.1. Document 802.18-02/019r0

- 4.6.3.1.1. Created a chart for the RR TAG
- 4.6.3.1.2. There are rules changes needed at SEC.
- 4.6.3.1.3. Motions were prepared.
- 4.6.3.1.4. Documents on the 802.18 server

## 4.7. Special Orders Section

### 4.7.1. TGe

4.7.1.1. Motion to empower TGe to hold an interim session in September 2002, to conduct comment resolutions, approve a new draft, and submit it to letter ballot or recirculation ballot.

4.7.1.1.1. Moved Fakatselis

4.7.1.1.2. Second Lanzl

4.7.1.1.3. Vote on the motion: Passes 109:2:6

### 4.7.2. TGf

4.7.2.1. Move to empower TGf to hold an interim meeting in September 2002 to conduct business required to making progress WRT to sponsor ballot processing, create new draft and handle other business necessary to progress through the IEEE standards process.

4.7.2.1.1. Moved Bagby

4.7.2.1.2. Second Rosdahl

4.7.2.1.3. Vote on the motion: Passes 117:0:2

### 4.7.3. TGg

4.7.3.1. Move to empower the 802.11 WG to issue a new working group letter ballot or recirculation ballot on the revised TGg draft at the September 2002 meeting.

4.7.3.1.1. Moved Shoemake

4.7.3.1.2. Second Cole

4.7.3.1.3. Discussion

4.7.3.1.3.1. Is this for the current draft or the next draft? The next meeting – if we want to issue a recirculation. It says “the revised TGg draft”

4.7.3.1.4. Vote on the motion: Passes 109:0:3

4.7.3.2. Per Procedure 10 of the LMSC rules (Rev. Nov. 12 2001), move to issue an IEEE 802.11 Working Group electronic letter ballot on Draft 3.0 of the IEEE 802.11g amendment to the IEEE 802.11 standard

4.7.3.2.1. Moved Shoemake on behalf

4.7.3.2.2. Vote: Passes 107:0:4

### 4.7.4. TGh

4.7.4.1. Move 802.11 WG affirms approval ratio over 75% and new draft can be submitted to recirculation ballot

4.7.4.1.1. Moved Kasslin

4.7.4.1.2. Second Myles

4.7.4.1.3. Discussion

4.7.4.1.3.1. There are many criteria for going to recirculation. The WG chair notes that we are following procedure.

4.7.4.1.4. Vote: Passes 99:0:5

4.7.4.2. Move to conduct a working group recirculation ballot to forward the 802.11h-D2.1.32 to sponsor ballot. Ballot is requested to complete before start of the scheduled September 2002 interim meeting

4.7.4.2.1. Moved Kasslin

4.7.4.2.2. Second Ecclesine

4.7.4.2.3. Discussion

4.7.4.2.3.1. This ballot would go to sponsor ballot if it reaches a certain threshold? It is a 75% threshold.

4.7.4.2.3.2. The WG chair notes that the rules say the obligation is to move to sponsor ballot at 75%.

4.7.4.2.3.3. If the recirculation ballot passes, then it goes to Sponsor Ballot? Yes. This is the normal process.

4.7.4.2.4. Vote: Passes 105:0:3

- 4.7.4.3. Move to empower TGh to hold an interim meeting in September 2002, conduct teleconferences, process letter ballot or recirculation ballot comments and consequently revise 802.11h D2.1.32 before the November 2002 IEEE 802 plenary.
  - 4.7.4.3.1. Moved Kasslin
  - 4.7.4.3.2. Second Lanzl
  - 4.7.4.3.3. Vote: Passes 103:0:0
- 4.7.4.4. Move that the WG, if necessary, conduct a WG letter ballot or recirculation ballot after the Sep 2002 interim meeting, for the purpose of forwarding a revised 802.11h D2.1.32 to sponsor ballot
- 4.7.4.5. Moved Kasslin on behalf of TGh
- 4.7.4.6. Vote: Passes 100:0:4
- 4.7.5. TGi
  - 4.7.5.1. Move to empower TGi to hold an interim meeting in September 2002 session to address letter ballot comments, make motions and submit a draft for Letter Ballot and empower the 802.11 WG to issue a new working group Letter Ballot
    - 4.7.5.1.1. Moved Haslasz
    - 4.7.5.1.2. Second Ecclsine
    - 4.7.5.1.3. Vote: passes 104:1:1

#### 4.8. *Liaison Reports*

- 4.8.1. 802.16 ↔ 802.11 Mika Kasslin
  - 4.8.1.1. Report in document 493
  - 4.8.1.2. 802.16a – draft d4a in LB approval 93%
  - 4.8.1.3. Issues with coexistence in unlicensed bands
  - 4.8.1.4. Issues – with the comment resolution process. Database on 802.16 web site.
  - 4.8.1.5. Planning a motion for LMSC – 802.16 approved motion for recirculation ballot. Trying to get into Sponsor ballot in near future.
- 4.8.2. WECA ↔ 802.11 – Bill Carney
  - 4.8.2.1. Report in document 463r0
  - 4.8.2.2. Changing name of WECA to WiFi alliance
  - 4.8.2.3. SSN initiative on security.
  - 4.8.2.4. WiFi label will be universal, with capabilities label
  - 4.8.2.5. the WG chair notes that the IEEE name will be in the brand as well.
  - 4.8.2.6. N+I Tokyo was very well attended. Lots of interest in hotspots, 802.11a cert, and security.
  - 4.8.2.7. Interoperability testing of 802.11a in May and upcoming in August. Formal cert program coming
  - 4.8.2.8. 375 certified products
  - 4.8.2.9. Discussion
    - 4.8.2.9.1. Questions about SSN – is SSN a candidate, or is it voted in? What is the timeframe for SSN becoming mandatory. The security task group will make a recommendation for the timeframe. There are objective timeframes, but they are not set.
    - 4.8.2.9.2. The objective is that security was a major issue at WECA, so the SSN was rolled out to address industry concerns.



## July 2002 WECA Liaison Report

Bill Carney  
July 12, 2002

### WECA Status

- Key announcements from recent Member Meeting June 18-20, Miami, FL
  - WECA intending to change its name to “Wi-Fi Alliance”
    - Objective: Brand/Name consistency between Industry Organization & Product Category
    - Pending legal and board approval - Not to be used yet
  - “SSN” submitted and accepted as candidate for interim security update initiative
    - Based on TKIP work of 802.11i
    - WECA Technical Committee/Security Group developing testing plan recommendations
  - New branding plan announced to members
    - Covers unified 802.11b, 802.11a Logo... plus “Capabilities Label”
    - Not yet publicly rolled out

## WECA Status (Cont.)

- Successful tradeshow at N+I / Tokyo, July 3-5, 2002
  - Many interviews and press conference with Japanese media
  - 12 member companies participated in pavilion – very high traffic
  - Areas of primary interest continue to be (in priority order)
    - Wi-Fi hot spots
    - 802.11a certification
    - Security
- Completed in May the second round of informal 802.11a interoperability testing
  - Expect third round to be in August
  - Anticipate test bed in place / formal certification starting closely thereafter
- Next Member's meeting Sept 24 – 26, Rome, Italy
- Next Trade Show – Nov 18 - 22, Comdex, Las Vegas
- 370+ certified products and growing steadily

4.8.3. The WG chair needs the Sponsor Ballot forms from TG chairs to give to IEEE. Angela Ortiz is the project coordinator from IEEE.

4.8.4. 802.11 ↔ CableLabs – Lior Ophir

4.8.4.1. Document 466r0

4.8.4.2. Docsis only defines USB, Ethernet, and PCI.

4.8.4.3. Other interfaces are not precluded but not checked.

4.8.4.4. CableHome is relevant – delivers services simultaneously – IP based.

## Liaison with CableLabs July Update

Lior Ophir  
Texas Instruments  
Broadband Communications in Israel  
Herzlia, Israel  
[lior.ophir@ti.com](mailto:lior.ophir@ti.com)

## Outline

- Liaison Purpose
- DOCSIS info
- CableHome initiative
- Next Steps

## *Purpose*

- Coordinate the use of 802.11 WLANs in DOCSIS cable modem systems

## *Method*

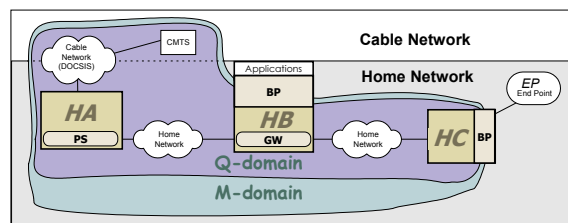
- Leverage 802.11 capabilities to meet needs of MSOs
- Introduce MSO needs and DOCSIS capabilities in 802.11 discussions
- Coordinate IEEE802.11/DOCSIS work

## DOCSIS

- Currently only three interfaces defined
  - Ethernet, USB, PCI
  - Checked by CableLabs in CM certification
- Other interfaces are not precluded
  - Basic test for data transfer only.
- First DOCSIS CM with WLAN certified 6/01
  - WLAN portion not checked by CableLabs

## CableHome Initiative

- Multiple services delivered simultaneously to multiple devices within the home
- Layer1/2 agnostic
  - Requirements: IP-based / has MAC address



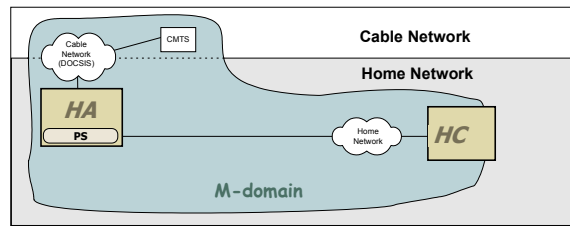
## CableHome Initiative

- Domains – sphere of influence of the spec. Separate QoS and Management domains.
- Logical elements – interfaces and functionality defined. Three basic types:
  - PS (portal service) – comprehends all CH services
  - BP (boundary point) - Interface between CH and non-CH devices
  - GW (gateway) – acts inside a CH device, interfaces LANs
- Physical devices – not defined directly. Collection of logical elements. Differentiated by topology
  - HA – Between CM and LAN domains, hosts CH application
  - HB – Extends CH to another LAN domain
  - HC – At the border of the CH domain

## CableHome Initiative

- Domains – sphere of influence of the spec. Separate QoS and Management domains.
- Logical elements – interfaces and functionality defined. Three basic types PS, BP, GW
- Physical devices – not defined directly. Collection of logical elements. Differentiated by topology HA, HB, HC

## CableHome1.0



- Available since 04/2002.
- Scope limited to the HA device: Firewall, NAT, DNS and DHCP LAN services, Provisioning and Management
- No QoS defined
- QoS, additional security, V/A distribution, VPNs, to be introduced by CableHome2.0 (Feb 2003).

## Next Steps

- Meeting with CableHome leadership scheduled for July
  - Currently working on CableHome2.0
  - On the agenda:
    - Identify and define areas for collaboration
    - Define collaboration mechanism
- Inputs are welcome [lior.ophir@ti.com](mailto:lior.ophir@ti.com)
- More information: [www.cablelabs.com](http://www.cablelabs.com)

- 4.8.5. (Recess for 15 minutes)
- 4.8.6. From 802.11  $\leftrightarrow$  JEDEC JC-61 – Benno Ritter
  - 4.8.6.1. Document 494
  - 4.8.6.2. Two different ad hoc groups began discussing possible common approaches to the 802.11 PHY/MAC and Radio/BaseBand interfaces in late 2001.
  - 4.8.6.3. The group organized as JEDEC committee JC-61 in March, 2002.
  - 4.8.6.4. Currently 40 member companies with a total of 120 participating members and alternates
    - 4.8.6.4.1. Last meeting in Boulder, CO in June
    - 4.8.6.4.2. 22 participating companies
  - 4.8.6.5. Next meeting in July 14th – 15th in Vancouver, BC after the IEEE meeting (same hotel)  
www.jedec.org
  - 4.8.6.6. Multiple proposals for RF-BB and MAC-PHY interfaces
  - 4.8.6.7. Expect approval at end of 4Q-02
  - 4.8.6.8. Discussion
    - 4.8.6.8.1. Are there any other interface? No just these two.
    - 4.8.6.8.2. Any plans for the host interface? No
    - 4.8.6.8.3. Are the proposal available? No not to the public, only members.

## Liaison Report JEDEC JC-61

Benno Ritter

Philips

July 12<sup>th</sup> 2002

## History

- Two different ad hoc groups began discussing possible common approaches to the 802.11 PHY/MAC and Radio/BaseBand interfaces in late 2001.
- The group organized as JEDEC committee JC-61 in March, 2002.

## Mission

Develop open industry interface specifications between radio and baseband, and between physical layer and MAC for wireless networking systems to enable cost effective interoperable solutions for enterprise, consumer, and embedded applications.



## Status

- Currently 40 member companies with a total of 120 participating members and alternates
- Last meeting in Boulder, CO in June
  - 22 participating companies
- Next meeting in July 14th – 15th in Vancouver, BC after the IEEE meeting (same hotel)  
www.jedec.org
- Procedure, MRD, and TRD in re-circulation ballots closed for both RF-BB and MAC-PHY interface, review at the next meeting, starting Sunday

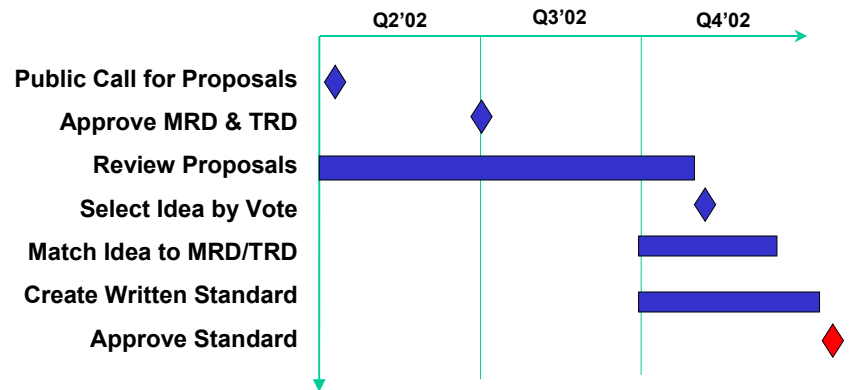
## Proposals

- RF – BB Interface
  - Philips (multilevel parallel interface)
  - Channel Technologies (6 line digital differential)
  - nVidea (6 line digital differential)
  - Helic (analogue I/Q interface)
- MAC – PHY Interface
  - Cirrus Logic (high speed serial differential interface)
  - Agere (multi line interface between MAC-PHY-RF)

## PR Material

- Preparing a ‘Welcome Package’
  - Presentation
  - Backgrounder
  - Technical White Paper
  - FAQ

## Proposed Timeline



## 4.9. Special Orders Motions

### 4.9.1. WNG

4.9.1.1. Move to empower WNG to investigate and draft a PAR and Five Criteria to extend 802.11, 802.11a and 802.11d, as necessary, to the Japanese 4.9GHz-5GHz bands, and after a Working Group confirming vote in the September 802.11 interim meeting, empower the Working Group to forward them for approval at the November 2002 IEEE 802 Plenary.

4.9.1.1.1. Moved Kraemer on behalf of WNG SC

4.9.1.1.2. Discussion

4.9.1.1.2.1. Does a Standing Committee have the authority to bring a motion? The WG chair notes that the SC works for the WG chair. The SC chair notes that anyone can bring a motion to the WG plenary. This was discussed and voted upon in the SC. The work is appropriate and the domain of the SC. The WG has to decide what to do with it. This PAR and 5 Criteria become the property of the WG.

4.9.1.1.2.2. The WG chair notes that the rules state that a SG is not required to write a PAR. An individual could do it.

4.9.1.1.2.3. Wants to make sure we do the right steps and process to stay out of trouble.

4.9.1.1.2.4. This is just a matter of aligning frequency allocations? 480r2 is on the server – they are saying that the APs are licensed and the radios are unlicensed. The 4.9 subband and 5.030 are new, so we have to change the way we handle channel numbers. We have to deal with licensed APs, and allow IBSS to be prohibited. There are parts of each document that must be changed, but we will change as little as possible.

4.9.1.1.2.5. What about not allowing IBSS's – what about the Mobile AP as being drafted in TGe? There are still some open issues. We need to fully understand the regulations – they are not finalized in Japan.

4.9.1.1.2.6. Why is the last part necessary? Why do we have to empower ourselves? It is an interim issue regarding a quorum. The WG chair states that this is a policy of the WG and SEC. It has been stated before.

4.9.1.1.2.7. This is the first time we have seen a PAR without a task group. We are in between having a full SG and an individual.

4.9.1.1.3. Vote on the motion: Passes 101:0:5

### 4.9.2. Publicity

4.9.2.1. Move to empower the 802.11 publicity committee to hold a meeting and conduct business at the September 2002 interim session

4.9.2.1.1. Moved Matthews

4.9.2.1.2. Second Murray

4.9.2.1.3. Vote: Passes 94:0:1

### 4.9.3. RRM SG

4.9.3.1. Move to affirm Richard Paine as the Chair of the Radio Resource Measurement Group

4.9.3.1.1. Moved Harry Worstell

4.9.3.1.2. Vote – accepted by acclamation

- 4.9.3.1.3. Move to empower the RRM SG to hold an interim meeting in September 2002, conduct teleconferences, process a PAR and 5 criteria and consequently submit the PAR and 5 criteria to the WG at or before the November IEEE 802 Plenary to start a Task Group.
- 4.9.3.1.4. Moved Worstell
- 4.9.3.1.5. Second Ecclesine
- 4.9.3.1.6. Vote: Passes: 90:0:0

#### 4.9.4. 802.18 RR TAG

- 4.9.4.1. Move to approve 18-02-13d8:\_cmts\_FCC\_spec\_pol\_TG.doc, empowering the chair of 802.18 to do editorial changes and update revision numbers as required and to present the document to the SEC for approval as an IEEE 802 filing with the FCC
  - 4.9.4.1.1. Moved Stephenson on behalf of 802.18
  - 4.9.4.1.2. Vote : Passes 91:0:5
- 4.9.4.2. Move to approve 18-02-106r0\_Rep\_cmts\_ARRL\_resp\_to\_opp.doc, empowering the chair of 802.18 to do editorial changes and update revision numbers as required and to present the document to the SEC for approval as an IEEE 802 filing with the FCC
  - 4.9.4.2.1. Moved Stephenson on behalf of 802.18
  - 4.9.4.2.2. Vote : Passes 76:2:7
- 4.9.4.3. Move to approve 18-02-017d0\_cmts\_on\_wac\_115\_WRC\_AI1.5.doc, empowering the chair of 802.18 to do editorial changes and update revision numbers as required and to present the document to the SEC for approval as an IEEE 802 filing with the FCC
  - 4.9.4.3.1. Moved Stephenson on behalf of 802.18
  - 4.9.4.3.2. Discussion
    - 4.9.4.3.2.1. The mover apologizes for any mischaracterization of the activities of the ARRL regarding their petition.
  - 4.9.4.3.3. Vote : Passes 98:1:5

#### 4.9.5. 802 COEX report – Jim Lansford

- 4.9.5.1. Document coex-02-025
  - 4.9.5.1.1. Will make summary and report to SEC to create TAG for COEX.
- 4.9.5.2. Motion to apply comment resolution databases 02/219r5 and 02/236r5 to draft version D05 producing version D06 to be sent out for a 40 day working group letter ballot to be completed before the September Interim.
  - 4.9.5.2.1. Moved Lansford
  - 4.9.5.2.2. Second Heile
  - 4.9.5.2.3. Vote: Passes 83:0:8

### 4.10. WG Operating Rules

- 4.10.1.1. Report in 459r1 – Al Petrick
- 4.10.1.2. Total 485 comments, 23 left to be resolved
- 4.10.1.3. Resolution document in 460r2
- 4.10.1.4. Will resolve remaining comments in September, produce draft 3.2, and submit for recirculation
- 4.10.1.5. New document will be 00/331r4
- 4.10.1.6. Discussion
  - 4.10.1.6.1. The revisions are inconsistent...
  - 4.10.1.6.2. The chair rules that the new version shall be 331r4

4.10.1.6.3. The WG chair has the power to impose the rules upon the group, but will complete the recirculation process as has been proposed.

4.10.1.7. Motion: to empower the WG to complete LB40 resolutions comments, revise operating rules draft and conduct a recirculation letter ballot at the September 2002 interim session.

4.10.1.7.1. Moved Petrick

4.10.1.7.2. Second Rosdahl

4.10.1.7.3. Discussion

4.10.1.7.3.1. This was done to allow all the comments to be incorporated. We didn't want to disenfranchise anyone.

4.10.1.7.3.2. The chair notes that there was a mis-wording. The documents have to be posted with the SEC chair. Not reviewed by SEC.

4.10.1.7.3.3. Does it have to be approved before the November plenary? No once we approve it, these are our rules

4.10.1.7.4. Vote: Passes 87:0:3

#### **4.11. High Throughput Study Group**

4.11.1. Discussion

4.11.1.1. We will assign a 2 hour slot for September. Will be discussed in CAC.

4.11.2. Nominations for chair

4.11.2.1. John Rosdahl nominated by Dirk Ostermiller

4.11.2.2. Bruce Kraemer nominated by John Kowalski.

4.11.2.3. No other nominations, the nominations are closed.

4.11.3. Discussion

4.11.3.1. There have been discussions and questions about the procedures of forming new study groups? Under the rules, the WG chair can chose to nominate a SG chair if desired. Stuart appointed Harry as interim chair for the RRM SG so they could get work done this week. The High Throughput SG does not start until September, so there was time to use the nomination process.

4.11.4. Election process – speeches by candidates

4.11.4.1. Jon Rosdahl – started in 802.11 in 1993, and took hiatus. Have worked in other groups and facilitated progress. We are striving to create an industry that flourishes and succeeds. Wants to provide a forum where an improvement can be made to effective throughput, while maintaining interoperability. Hopes to reduce the discrepancy between the bit rate and the delivered rate. Focusing something that is doable in the shorter term. Has obtained approval to put the necessary time into the group.

4.11.4.1.1. Questions?

4.11.4.1.1.1. none

4.11.4.2. Bruce Kraemer – It's unusual to have two candidates, indicates high level of interest. Have been in 802.11 for 4 years, starting in PAN which became 802.15. Was Publicity chair, and moved into the 5GSG leadership as vice chair. The chairs had to step down, so served as chair until completion. Also volunteered as vice chair, and served as chair due to the chair not attending. Decided to chair the HTSG. Vision: the purpose of the SG is to create a PAR and 5 criteria. Will facilitate that progress. Emphasize what will happen in the SG. The WNG has identified some controversial subjects such as spectrum allocation. We will need to make some MAC improvements, which will be address in the

TG phase of the effort. In the past there have been conflict of interest. Bruce nor Intersil will not make a technical proposal. If such a proposal is brought forward from Intersil, Bruce will resign the HRSG/TG chair. Has management approval and support.

4.11.4.2.1. Questions

4.11.4.2.1.1. Will you be able to continue the WNG role? No – if I take the HR chair, will resign vice chair in WNG

4.11.4.2.1.2. What's the process for determining if there is a vice chair? Will answer after the election.

4.11.5. Voting

4.11.5.1. Process – one vote for either candidate, or abstain. Candidates will not vote, and the WG chair will not vote. 50% simple majority wins. Please Vote.

4.11.5.2. The WG chair notes that both candidates are suitable and qualified for the position, and are both voting members.

4.11.5.3. All voting members in the room: 118

4.11.5.4. Votes for Bruce Kraemer: 49 (43%)

4.11.5.5. Votes for Jon Rosdahl: 65 (57%)

4.11.5.6. Abstains: 7

4.11.6. John Rosdahl is elected the Chair of the HT SG

4.11.7. The SG will start in September.

4.11.8. The issue of Vice Chair

4.11.8.1. The WG chair notes that we appoint a vice chair for larger groups. When the chairs need assistance, it is the decision of the WG Chair.

**4.12. IEEE 802.11 standard roll-up and amendments**

4.12.1. Report in 02/486r0 – Terry Cole

4.12.1.1. 802.11 2002 will include all existing amendments into a single document.

4.12.1.1.1. 802.11 1999, 802.11a, 802.11b , 802.11b corrigendum 1, 802.11d

4.12.1.2. The goal is to complete the work by early fall, if possible

4.12.1.2.1. Note. Revcom may disapprove any further amendments to 802.11 1999; there are currently 4 amendments and the usual maximum is 2.

4.12.1.3. WG will:

4.12.1.3.1. Verify all typos are just editorial

4.12.1.3.2. Respond to all issues raised in merged document.

4.12.1.3.3. Raise any non-editorial issues in future report to WG

4.12.1.3.4. Provide SDL marked-up diagrams based on the editing questions

4.12.1.4. The WG chair requests Terry Cole to attend CAC meetings as the representative of this work.

4.12.1.5. Updates to SDL will be provided.

4.12.1.6. The IEEE does distribute SDL with the document. It is under the IEEE copyright. The IEEE might make the decision to stop supplying the SDL since it will be out of date once we pass the rollup. The diagrams will remain since we put them in.

4.12.2. Motion: 802.11 WG recommends that the IEEE discontinue supplying the SDL when 802.11 2002 is published, since it will not be up to date.

4.12.2.1. Moved Terry Cole

4.12.2.2. Second Adrian Stephens

## 4.12.2.3. Discussion

4.12.2.3.1. The SDL code resulted from comments at the sponsor ballot of 802.11. Is it fair to assume that that person is no longer part of the pool? We are updating the flow charts, just not the code. The members go by the diagrams not the code. The document is under the control of IEEE. We can only make a recommendation.

4.12.2.3.2. Are you not providing the code in electronic form, or deleting the state machines? Annex C will be modified per the editing instruction. The document will be checked for consistency. No annexes will be removed. The files that are separate will be removed.

4.12.2.4. Motion to amend to: 802.11 WG recommends that the IEEE discontinue supplying the SDL code in electronic form when 802.11 2002 is published, since it will not be up to date.

4.12.2.4.1. Moved Bagby.

4.12.2.4.2. Second Smart

4.12.2.4.3. Vote on the amendment: Passes 48:0:8

## 4.12.2.5. Discussion

4.12.2.5.1. Does this reflect on whether SDL state machines are required in future amendments of 802.11? The chair states this is a specific action, and no precedent is being set.

4.12.2.6. Vote on the motion: Passes 60 : 1 : 6

4.12.2.7. Terry will transmit this information to the IEEE staff, Stuart will make it formal by letter.

# IEEE 802-11 Standard Roll-up Report

## 802.11 2002 Specification

- 802.11 2002 will include all existing amendments into a single document.
  - 802.11 1999
  - 802.11a
  - 802.11b
  - 802.11b corrigendum 1
  - 802.11d
- The goal is to complete the work by early fall, if possible
  - Note. Revcom may disapprove any further amendments to 802.11 1999; there are currently 4 amendments and the usual maximum is 2.

## Work Plan

- IEEE Editing staff will:
  - Identify all typos in original documents
  - Merge the documents and identify any issues
  - Complete and publish the document
- WG will:
  - Provide technical assistance on issues that arise from merging
  - Possibly be requested to affirm the new version by letter ballot (Revcom decision)



## Next Steps

- WG will:
  - Verify all typos are just editorial
  - Respond to all issues raised in merged document.
  - Raise any non-editorial issues in future report to WG
  - Provide SDL marked-up diagrams based on the editing questions

## IEEE SDL Code

- The IEEE currently provides SDL code along with the IEEE 802.11 1999 document
  - This code belongs to the IEEE and not the WG
  - The TGs did not update the SDL as part of the amendment process
  - The IEEE has suggested that the IEEE will discontinue supplying the SDL since it will not be up to date

## Motion

- 802.11 WG suggests that the IEEE discontinue supplying the SDL when 802.11 2002 is published, since it will not be up to date.

**4.13. Interpretation Request**

- 4.13.1. Request for Clarification
- 4.13.2. Document 490r1
  - 4.13.2.1. It is agreed that filtering of received MPDUs for Beacon and Probe responses when not in a BSS within Process Defragment and Process Rx-Coordination is redundant. It does no harm, so it can be considered a benign error. Process Rx\_Coordination has the following errors on page rx\_coord\_2b(4) of ANNEX C: 1. Group address filtering for ATIM MPDUs is incorrect. ATIMs may validly be sent to a group address for the transmission of MSDUs to group addresses as a result of the IBSS power-saving protocol.
  - 4.13.2.2. 2. Received beacons, probe requests, authentication, deauthentication, ATIM and probe response are wrongly sent to the RSDU gate (i.e. eventually to the LLC) using the MsduIndicate signal. They should instead be sent from this process to the MCTL gate using the MmIndicate signal.
  - 4.13.2.3. Note that received MPDUs are validly filtered to exclude probe responses with group destination address because there is no use defined in the other clauses of the 802.11 standard for such a packet.
- 4.13.3. Agreed with the comments and the findings are as published.
- 4.13.4. Motion to approve the response in document 490r1 to the IEEE 802 inquiry from Radu Mihaesku of Redline Communications in Romania
  - 4.13.4.1. Moved Harry Worstell
  - 4.13.4.2. Second Simon Black
  - 4.13.4.3. Discussion
    - 4.13.4.3.1. When is the response due? This motion is the response.
  - 4.13.4.4. Vote: Passes 43:0:13
- 4.13.5. The interpretation will be lodged with the IEEE per the LSMC rules.
- 4.13.6. Discussion
  - 4.13.6.1. What happens now? We need to put this into a maintenance PAR. Not in the rollout. We will collect all the maintenance issues and at the appropriate time, issue a maintenance PAR.

**4.14. New Business**

- 4.14.1. Next Meeting Sept 9-13, Hyatt Regency Monterey

**4.15. Adjourn at 12:00**

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**IEEE P802.11  
Wireless LANs**

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

**Hyatt Regency Vancouver, Vancouver, BC, Canada**

**Date:** July 8 - 12, 2002

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## **1. Monday July 8, 2002**

### **1.1. Opening**

- 1.1.1. Meeting called to order at 3:30PM by John Fakatselis
- 1.1.2. Secretary Tim Godfrey

### **1.2. Agenda**

- 1.2.1. TGe agenda as in document 02-385
  - 1.2.1.1. *The chair reviews the agenda.*
    - 1.2.1.1.1. *We will discuss the comment resolution process.*
    - 1.2.1.1.2. *Comment resolution will be the main activity for the rest of the week.*
    - 1.2.1.1.3. *On Thursday, we will go over Old Business, and if there is a new draft, we can vote on it.*
  - 1.2.1.2. *Discussion on the agenda*
    - 1.2.1.2.1. *Would like to add to the agenda. There are a number of letter ballot comments on TSpec. This is the one biggest area of the spec open to debate. Would like to have a vote with special orders to remove TSpecs from the standard. Would like to make this early on Tuesday AM. About one hour of debate would be enough. A one hour discussion followed by a vote at a specific time.*
    - 1.2.1.2.2. *Discussion, Tuesday 8:00-9:00*
    - 1.2.1.2.3. *Vote, Tuesday 9:00*
    - 1.2.1.2.4. *Adrian Stephens requests to have the first opportunity for a motion at 9:00*
    - 1.2.1.2.5. *Discussion*

- 1.2.1.2.5.1. We need to clarify what we are saying here so we don't tie ourselves if this doesn't pass. We want to address TSpec, but we don't want to prevent dealing with it if this doesn't pass.
- 1.2.1.2.5.2. Motions are allowed during the discussion time.
- 1.2.1.2.5.3. We should just list this as a discussion for one hour, and deal with motions during that time.
- 1.2.1.2.5.4. The agenda shows evening at 6:30, but the starting times are actually 7:00. Yes, we will correct this.
- 1.2.1.2.5.5. The discussion at 9:00 really shouldn't start until there is a motion, and then we have debate?
- 1.2.1.3. *Motion to adopt the agenda*
- 1.2.1.3.1. *Moved John F*
- 1.2.1.3.2. *Second Duncan K*
- 1.2.1.3.3. *Discussion*
- 1.2.1.3.3.1.1. Object to the wording. Should be "vote to remove the TSpec" We need to say what the vote is on.
- 1.2.1.3.3.2. Move to divide into 3 pieces: From now to Tuesday at 8:00AM, 2<sup>nd</sup> part from Tuesday 9:00AM to Thursday at 9:30PM, and the third part Tuesday from 8:00AM to 9:00AM.
- 1.2.1.3.3.2.1. John K
- 1.2.1.3.3.2.2. Sid S
- 1.2.1.3.3.2.3. Vote: Passes 24:9:8
- 1.2.1.3.4. *Divided motion 1 – to adopt the agenda form now to Tuesday 8:00AM.*
- 1.2.1.3.4.1. Discussion – none
- 1.2.1.3.4.2. Agenda part adopted with unanimous consent.
- 1.2.1.3.5. *Divided motion 2 – to adopt the agenda for Tuesday from 8:00AM to 9:00AM*
- 1.2.1.3.5.1. Discussion
- 1.2.1.3.5.1.1. Would like to take a straw poll – who is in favor of keeping parameterized QoS. 33 for.
- 1.2.1.3.5.1.2. Does anyone not want to have any form of Parameterized QoS. None.
- 1.2.1.3.5.1.3. Call the question (John K/ Lansford)
- 1.2.1.3.5.1.4. Vote on calling the question: Passes 26:4:8
- 1.2.1.3.5.2. Vote on the 2<sup>nd</sup> part: Vote fails 8:25:10
- 1.2.1.3.6. *Divided Motion 3 – to adopt the agenda for Tuesday at 9:00AM for the rest of the week.*
- 1.2.1.3.6.1. Discussion

- 1.2.1.3.6.1.1. What is the agenda for the time Tuesday 8:00 to 9:00? It goes back to Comment resolution.
- 1.2.1.3.6.2. Motion to amend- add the text “including agenda line 11.0, (comment resolution starting at 8:00AM Tuesday).”
- 1.2.1.3.6.2.1. Moved Duncan / Adrian
- 1.2.1.3.6.2.2. Discussion – none
- 1.2.1.3.6.2.3. Vote on the motion to amend – adopted without objection
- 1.2.1.3.7. *Divided Motion 3 as amended – to adopt the agenda for Tuesday at 9:00AM for the rest of the week, including agenda line 11.0, (comment resolution starting at 8:00AM Tuesday).*
- 1.2.1.3.7.1. Discussion
  - 1.2.1.3.7.1.1. What are the matters and agenda for the joint TGg meeting? It was requested by TGg, but we don’t have a particular agenda in TGe. It has been approved in the WG meeting. We can’t change it.
- 1.2.1.3.7.2. Vote on the motion as amended. Adopted without objection
- 1.2.1.4. *The agenda is approved*

### 1.3. **LB Results / Comment resolution**

#### 1.3.1. **Review of objectives for this session**

- 1.3.1.1. *Results of LB39*
  - 1.3.1.1.1. *We have 106 yes, 110 No, 44 Abstains*
  - 1.3.1.1.2. *260 total votes from 365 eligible voters, 216 were Yes or No votes.*
  - 1.3.1.1.3. *On LB32, we had a higher percentage of 54% yes. There were only 260 voters then.*
- 1.3.1.2. *Attempt 75% approval of LB39 through vote conversion.*
  - 1.3.1.2.1. *Try to come to closure and exclude new “No” votes from new voters.*
- 1.3.1.3. *Begin Comment Resolution*
- 1.3.1.4. *Issue an updated draft based on comments resolved.*

#### 1.3.2. **Overview of comments received**

- 1.3.2.1. *Comments were imported into Access database. Comments not in the correct format may not have been imported.*
- 1.3.2.2. *The comments will also be available in Excel format.*

#### 1.3.3. **Strategy**

- 1.3.3.1. *There are 44 Abstains – can we approach them to convert to Yes? A global email will be sent out asking them to reconsider.*

- 1.3.3.2. *Address no voters with comments in common. Some voters have submitted the same comments file. We will attempt to address these issues in groups, or have one member of the group carry a single no vote.*
- 1.3.3.3. *Address individuals with small numbers of comments (<5) and a No Vote.*
- 1.3.3.4. *Identify invalid "No" Votes. EG – no comments attached, or no specific comments would be invalid.*
- 1.3.3.5. *Discussion*
  - 1.3.3.5.1. *How many voters are in each category?*
    - 1.3.3.5.1.1. 44 Abstains
    - 1.3.3.5.1.2. 59 with 5 or less comments.
  - 1.3.3.5.2. *Would much rather wait until we get above 75% before we tackle TSpec issues.*
  - 1.3.3.5.3. *Don't think there should be equal weight. More people should deal with the low comment voters.*
  - 1.3.3.5.4. *What is the appropriate percentage to go to sponsor ballot. 75% is required, but historically, it has to be in the 90% range to get past ExCom approval.*
  - 1.3.3.5.5. *We can't just tinker with it to get Yes votes, we might end up with something un-implementable? Do we lose control? No, this group decides what goes out to ballot. A 75% vote in TG, and in WG.*
  - 1.3.3.5.6. *Is it still possible to have new contributions? Is there any way to prevent new contributions? The agenda only allows papers that addresses comments on No votes.*
- 1.3.3.6. *Message to Abstainers to change No to Yes votes.*
  - 1.3.3.6.1. *Discussion*
    - 1.3.3.6.1.1. *Is it allowable to let those who abstain for lack of expertise to change to a Yes? If they don't understand it? Yes, it is allowed. They might want to help move towards a standard.*
    - 1.3.3.6.1.2. *Suggest that the CAC leadership reviews the process for converting votes during a meeting. Would there be a recirculation on any changes this week? Yes*
    - 1.3.3.6.1.3. *It is true that if anyone changes to a No vote, they have to attach comments.*
  - 1.3.3.6.2. *Motion to send this Message as presented by the chair to the Abstain voters on Letter Ballot 39*
    - 1.3.3.6.2.1. Moved Keith A
    - 1.3.3.6.2.2. Second John K
    - 1.3.3.6.2.3. Vote on the motion: Passes 28:3:5
  - 1.3.3.6.3. *Discussion*
    - 1.3.3.6.3.1. *Is it feasible to split the PAR and Letter Ballots into separate documents? So we can get the non-controversial items approved? We not going to try and distinguish controversial. We'll try to go with the easy negotiations first.*

- 1.3.3.6.4. *How many abstainers from LB39 are present?*
  - 1.3.3.6.4.1. *None.*
- 1.3.3.6.5. *How many No voters are present? 23*
- 1.3.3.6.6. *How many No voters submitted < 5 Comments?*  
2
- 1.3.3.7. *Discussion*
  - 1.3.3.7.1. *We need to ask those questions in a WG plenary session.*

## 1.4. Closing

1.4.1. **We will continue at 7:00PM**

1.4.2. **Recess at 5:30PM**

## 1.5. Evening Session

### 1.5.1. Opening

- 1.5.1.1. *Call to order at 7:00PM*
- 1.5.1.2. *John F: We will continue through the remaining items on the agenda...that was to be done before the break...*
- 1.5.1.3. *Any new participants? Only 3 ...a few new participants...you need to be a voting member to vote ...can debate...if you want to present a motion, make sure you chat with a member who will take it up on your behalf...do not abuse the "Point of Order" motion...*
- 1.5.1.4. *Are there any comments on the minutes as presented by the secretary on the TGe minutes of the Sydney meeting?*
- 1.5.1.5. *Minutes approved by without objection...*

### 1.5.2. Call for Papers

- 1.5.2.1. *Sunghyun – HCF duration field*
- 1.5.2.2. *Adrian – TSpec coexistence support*
- 1.5.2.3. *John K – scheduler behavior & TSpec modifications*
- 1.5.2.4. *John K – recommended practice for use of 802.11e for broadcast A/V applications*
- 1.5.2.5. *Jin-Meng – 407r0 TS signaling*
- 1.5.2.6. *Jin-Meng/Michael Fischer – 408r0 Group polling for DCF based reservation request*
- 1.5.2.7. *Mike Lewis – 415r0 Avoiding scrambler seed transmission errors*
- 1.5.2.8. *Srini – WARP changes*
- 1.5.2.9. *Srini – MAC architecture*
- 1.5.2.10. *Srini – frame exchange sequences*
- 1.5.2.11. *Srini – burst ack primitives*
- 1.5.2.12. *Srini – polling list normative text*
- 1.5.2.13. *Lior – status of FEC ad-hoc group*



- 1.5.2.14. *Wim – alternative to WARP*
- 1.5.2.15. *Menzo – Direct Stream Request Protocol, Doc 421*

### 1.5.3. **Strategy Discussion, continued**

- 1.5.3.1. *Assign leaders for four areas*
  - 1.5.3.1.1. *Coordinator for Abstain votes (nobody volunteers)*
  - 1.5.3.1.2. *Multiple No Voters will be addressed in the group.*
  - 1.5.3.1.3. *Coordinators for Individuals for Small Numbers of Comments – Srin*
  - 1.5.3.1.4. *Coordinator for identifying invalid no votes or TR comments – Keith Amman.*
  - 1.5.3.1.5.
- 1.5.3.2. *(the chair moves to Duncan Kitchin)*

## 1.6. **Comment Resolution**

### 1.6.1. **Single Comment No Votes**

- 1.6.1.1. *Comment ID 1763, 9.10.1*
  - 1.6.1.1.1. *Resolution – Accept the comment and clarify why it is needed. The editor will provide the clarification.*
    - 1.6.1.1.1.1. *Background: This relates to a harmless space. It was to account for an accumulated timing drift. Some thought it was to give the HC priority, which is not needed since it already has priority.*
  - 1.6.1.1.2. *Accepted without objection*
- 1.6.1.2. *Comment 1540*
  - 1.6.1.2.1. *Resolution – respond to the commenter that the issue has been debated, and the decision was made to delete the SDL.*
  - 1.6.1.2.2. *Resolution accepted without objection.*
- 1.6.1.3. *Comment 1541*
  - 1.6.1.3.1. *Discussion*
    - 1.6.1.3.1.1. *This can be resolved by writing the PICS. We need to write it eventually*
    - 1.6.1.3.1.2. *Propose that we note this request and move on.*
- 1.6.1.4. *Comment 1542*
  - 1.6.1.4.1. *Discussion*
    - 1.6.1.4.1.1. *Commenter wants to eliminate FEC.*
    - 1.6.1.4.1.2. *Propose to decline. FEC has broad support in this group.*
    - 1.6.1.4.1.3. *There are a number comments related to FEC that have been made. Suggest that we skip over FEC for now, and discuss them all later in the week.*
    - 1.6.1.4.1.4. *We should discuss sooner rather than later.*

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**1.6.1.5. Comment 218****1.6.1.5.1. Discussion**

- 1.6.1.5.1.1. Suggestion to use the levels of 802.1d for priority.
- 1.6.1.5.1.2. The remedy suggests that level 0 is not the lowest level.
- 1.6.1.5.1.3. Defining mapping above the MAC SAP does not address this.
- 1.6.1.5.1.4. 802.1d is accepted as a mapping for priorities.
- 1.6.1.5.1.5. We had this mapping at one point. The thought was there was no need for a priority below best effort.
- 1.6.1.5.1.6. Is there any impact for making this change?

**1.6.1.5.1.7. This comment from LB30 comments**

**084 was read:** There is no reason to follow the 802.1D priority values WITHIN 802.11e (and they are only suggested usage in 802.1D itself because they appear in INFORMATIVE annex H.2). The "determination of priority" should simply be in ascending numeric sequence, with 0 as the lowest and 7 as the highest. There is also more risk to including a remapping table for these values in the MIB than in using the value provided at the MAC SAP without change. The problem is that for proper operation of the priority mechanism in a QBSS all QSTAs must be using TCID values in a uniform manner. If any mapping of the provided user priority values is done within the MAC a higher-level entity (that uses prioritised QoS) could be operating correctly but not getting the QoS it believes to be requesting because of a priority remapping of which it is unaware. Note that this has no impact on the possible use of 802.1D interpretations of this field in MAC bridges (the subject of 802.1D) because the 802.1D reference model has an internal SAP that the bridging entity uses to send and receive frames via the MAC entity.

- 1.6.1.5.1.8. Suggest that we accept this, and say the if one queue is implemented, you must use best effort parameters.

- 1.6.1.5.1.9. Suggest that we accept the first part, and do not require that level 0 is the lowest level.

1.6.1.5.1.9.1. Straw Poll 12: 7 : 7

- 1.6.1.5.1.10. It does break things to allow level 0 to not be the lowest level.

- 1.6.1.5.1.11. Table this discussion and come back later.

**1.6.1.6. Comment 1582****1.6.1.6.1. Discussion**

- 1.6.1.6.1.1. This is an issue we have set aside time to discuss.
- 1.6.1.6.1.2. Move on at this point.

**1.6.1.7. Comment 1764****1.6.1.7.1. Discussion**

- 1.6.1.7.1.1. Asking for clarification of mandatory and optional.
- 1.6.1.7.1.2. This will be addressed in the PICS.
- 1.6.1.7.1.3. The commenter may still want things to be optional that are not currently.
- 1.6.1.8. **Comment 422**
  - 1.6.1.8.1. *Discussion*
    - 1.6.1.8.1.1. Wants QAPC-STA removed or simulated.
    - 1.6.1.8.1.2. The whole AP Mobility is a big area for comments. We need to set aside time for debate.
- 1.6.1.9. **Comment 1440**
  - 1.6.1.9.1. *Discussion*
    - 1.6.1.9.1.1. Suggests document 214r0.
    - 1.6.1.9.1.2. It is difficult to compare the proposed changes with the current standard.
    - 1.6.1.9.1.3. Straw poll – how many would support adopting 02-214r0 (or specifically deleting AIFS)? 10:10:14
    - 1.6.1.9.1.4. We need to defer this debate. There are alternative candidates for simplifying EDCF.
    - 1.6.1.9.1.5. Straw Poll – who would like to see a simpler EDCF contention than what we have now? 27:5:3
    - 1.6.1.9.1.6. We need to run a set of simulation scenarios similar to what was already done, so we can decide it is better.
    - 1.6.1.9.1.7. We will set aside time later this week – simplifications to EDCF.
- 1.6.1.10. **Comment 1524**
  - 1.6.1.10.1. *Discussion*
    - 1.6.1.10.1.1. Commenter wants a PICS
    - 1.6.1.10.1.2. We have set up an ad-hoc group.
    - 1.6.1.10.1.3. We will come back to this with a PICS and accept this.
- 1.6.1.11. **Comment 1859**
  - 1.6.1.11.1. *Requesting MAC state machines*
  - 1.6.1.11.2. *Remedy*
    - 1.6.1.11.2.1. We could declare the comment invalid since there is no proposed remedy.
    - 1.6.1.11.2.2. The draft needs to have an annex C specifying the deletion of the SDL.
    - 1.6.1.11.2.3. Each spec is allowed to use state machines to clarify the standard where the Task Group decides it needs to do so.
    - 1.6.1.11.2.4. Respond to the commenter explaining that the group has decided to delete the SDL.

- 1.6.1.11.2.5. resolution accepted with no objections.
- 1.6.1.12. *Comment 1521*
- 1.6.1.12.1. *Doesn't want to have priority above Legacy devices.*
- 1.6.1.12.2. *Discussion*
- 1.6.1.12.2.1. The purpose of the QoS is to provide priority, not fairness.
- 1.6.1.12.2.2. There are ways that a device can be configured to deal with this if desired. AP management functions outside the scope of the standard, in the settings of the MIB, would allow this type of operation.
- 1.6.1.12.3. *proposed Disposition*
- 1.6.1.12.3.1. Accept the comment: The objective of the comment can be achieved through settings of the MIB.
- 1.6.1.12.4. *Discussion*
- 1.6.1.12.4.1. It isn't true that legacy traffic can be completely shut down.
- 1.6.1.12.4.2. There are a number of different suggestions. Table this and move on.

## 1.7. Debate Topics

- 1.7.1.1. *FEC*
- 1.7.1.2. *QAPC-STA*
- 1.7.1.3. *EDCF Simplification*
- 1.7.1.4. *TSpecs / Signaling*
- 1.7.1.5. *CC/RR*
- 1.7.1.6. *WARP / Side Traffic*
- 1.7.1.7. *802.1D Annex H*
- 1.7.1.8. *Discussion*
- 1.7.1.8.1. *We don't have two hours for each, we will have to set aside 1.*
- 1.7.1.8.2. *Can we get the sides into small groups and bring a compromise? We need to discuss with everyone here.*
- 1.7.1.8.3. *The commenter are not here.*
- 1.7.1.8.4. *Propose that we set aside one hour each.*
- 1.7.1.8.4.1. No objections
- 1.7.1.9. *Scheduling of debate topics*
- 1.7.1.10. *Suggest continuing resolving comments tomorrow AM, and have debate topics starting in the evening*
- 1.7.1.10.1. *The Tuesday evening session would cover FEC and QAPC-STA*
- 1.7.1.10.2. *Wednesday – EDCF simplification, and TSpec signaling.*

1.7.1.10.3. Wednesday evening on CC/RR, WARP, and  
802.1d

## 1.8. Comment Resolution

- 1.8.1.1. Comment 1521
    - 1.8.1.1.1. Straw poll on resolution:
      - 1.8.1.1.1.1. Accept the comment and respond without changing the draft: 10
      - 1.8.1.1.1.2. Accept the comment with changes to the draft: 0
      - 1.8.1.1.1.3. Reject the comment: 12
  - 1.8.1.2. Conclusion – we do not change the draft in response to this.
  - 1.8.1.3. Discussion
    - 1.8.1.3.1. Accepting the comment doesn't necessarily change the No vote.
    - 1.8.1.3.2. Can we accept the proposed remedy without changing the draft?
    - 1.8.1.3.3. Will draft responses.
- 1.8.2. **Announcements**
- 1.8.2.1. AllTRComments\_jwr-kra.xls contains duplicate comments that identify those that submit blocks of identical comments.

## 1.9. Recess at 9:30PM

# 2. Tuesday, July 09, 2002

## 2.1. Opening

- 2.1.1. The session is called to order at 8:00AM by John Fakatselis
- 2.1.2. The chair moves to Duncan Kitchin
- 2.1.3. Discussion
  - 2.1.3.1. There are new contributions for the FEC
    - 2.1.3.1.1. Document 414, "Analysis of Dual Precoding for FEC",
    - 2.1.3.1.2. Document 429, "Scrambler mismatch correction using the MAC FEC"
  - 2.1.3.2. The FEC subject will be addressed at 7:00 tonight
  - 2.1.3.3. 54 No votes need to be converted.

## 2.2. Comment Resolution

- 2.2.1.1. Comment 1521, continued
  - 2.2.1.1.1. Discussion
    - 2.2.1.1.1.1. The MIB can be set to give priority to legacy stations. The concern is not well founded.

- 2.2.1.1.2. *Drafting a suggested response.*
  - 2.2.1.1.2.1. Mechanisms exist in the draft to permit, by way of modification to MIB and other parameters, legacy or best effort traffic to gain access to the medium at arbitrary priority. However, the group considers it undesirable to do so as this is contrary to the purpose of the QoS mechanism. An admission control function at a higher layer may also be used to ensure a minimum level of service for best effort traffic.
  - 2.2.1.1.3. *Straw poll – who likes the resolution: 15:1*
  - 2.2.1.1.4. *Resolution accepted without objection*
- 2.2.1.2. *Comment 1520*
  - 2.2.1.2.1. *Comment calls for an informative section on usage models..*
  - 2.2.1.2.2. *Discussion*
    - 2.2.1.2.2.1. This is not a technical comment, since it is asking for informative text.
    - 2.2.1.2.2.2. It is OK for us to accept the comment and do nothing. Somebody can write the informative text
    - 2.2.1.2.2.3. Several people think the informative text will be helpful
  - 2.2.1.2.3. *Proposed resolution*
    - 2.2.1.2.3.1. Accept the suggested remedy. Form an ad hoc to write the informative text.
  - 2.2.1.2.4. *Accepted without objection*
- 2.2.1.3. *Comment 1511*
  - 2.2.1.3.1. *Comment: FEC work is still going on*
  - 2.2.1.3.2. *Discussion*
    - 2.2.1.3.2.1. No specific action is requested. We have time set aside to work on FEC here.
  - 2.2.1.3.3. *Proposed resolution*
    - 2.2.1.3.3.1. Accept the proposed remedy
  - 2.2.1.3.4. *Accepted without objection*
- 2.2.1.4. *Comment 1509*
  - 2.2.1.4.1. *“Placing global connectivity as a higher ranked parameter in a QAPC-STA negotiation, will allow infrastructure applications to lock out point-to-point connections in the IBSS situation. If I have a projector and a laptop in the same room with an internet”*
  - 2.2.1.4.2. *Discussion*
    - 2.2.1.4.2.1. We will defer discussion until after the QAPC-STA time slot
- 2.2.1.5. *Comment 1545*
  - 2.2.1.5.1. *“The 11e standard needs to add support for a "neighbor network" functionality that will reciprocate the neigh piconet functionality provided in the 15.3 standard.*

*This will allow manufacturers to provide a coexistence mechanism for 802.11b/g to coexist in”*

2.2.1.5.2. *Discussion*

2.2.1.5.2.1. Much of this work in the area of OBSS has been deferred to a later standard.

2.2.1.5.2.2. There is a submission on 802.15.2 that might apply.

2.2.1.5.2.3. This commenter is asking for something outside the scope of this PAR.

2.2.1.5.2.4. This is an issue with any 802.11 MAC not just TGe. It might be better addressed in the Radio Resource Management SG.

2.2.1.5.3. *Proposed Response*

2.2.1.5.3.1. Reject the comment as outside the scope of the PAR, and re-direct them to the RRM SG.

2.2.1.5.4. *Discussion*

2.2.1.5.4.1. The RRM SG might not satisfy the commenter. The submission 406r0 might address it better in the short time.

2.2.1.5.4.2. This should be deferred to the TSPEC group

2.2.1.5.4.3. Do we defer to TSPEC or reject? Straw Poll? Defer to TSPEC group: 17 Defer to RRM SG: 3

2.2.1.5.4.4. Defer to TSPEC group.

2.2.1.5.5. *No objections*

2.2.1.6. *Comment 1510*

2.2.1.6.1. *“sidelink traffic should not be a mandatory part of 802.11e. I am not sure of its value if it is optional, rather than mandatory. The 5.9.2 WARP cache description does not include data rates or power levels.”*

2.2.1.6.2. *Remedy: “Remove all references to 'sidelink' traffic and 'Direct Frame Transfer' (all of 3.70, in 3.74, all of 5.9, in 7.3.2.15, in Table 20.1.1, all of 9.11, in 11.6, in 11.6.5)”*

2.2.1.6.3. *Discussion*

2.2.1.6.3.1. We should decline this

2.2.1.6.3.2. We should point out that sidelinks help conserve limited bandwidth.

2.2.1.6.3.3. We will discuss with the commenter and try to persuade them to withdraw it.

2.2.1.6.3.4. Does anyone support the comment?  
None

2.2.1.6.4. *Proposed – decline the comment and discuss with them.*

2.2.1.7. *Comment 1546*

2.2.1.7.1. *“The discussions on the FEC option in the last few meetings highlight that this feature has not been*

- thoroughly thought out and it's unclear that it will interact well with legacy products.”*
- 2.2.1.7.2. *Remedy “Remove the FEC feature until it can be given the time that is required to get it right.”*
- 2.2.1.7.3. *Defer to FEC discussion*
- 2.2.1.8. *Comment 1508*
- 2.2.1.8.1. *“Not convinced of the usefulness of a MAC-layer FEC mechanism”*
- 2.2.1.8.2. *Remedy “Remove all references to MAC layer FEC.”*
- 2.2.1.8.3. *Defer to FEC discussion*
- 2.2.1.9. *Comment 1128*
- 2.2.1.9.1. *“The HCF Control Channel Access Procedure does not currently allow the HC to send a CF-Poll that is restricted to a particular TID. This results in network inefficiencies that can easily be eliminated. While the obtaining of a contention based TXOP (EDCF”*
- 2.2.1.9.2. *Remedy “Include a mechanism for requiring TID matching in CF-Poll's. One such mechanism is detailed in doc. 11-02-022. A Requested TID (RTID) bit is added to the QoS Control Field in CF-Poll's to indicate that the station should only respond with traffic of the”*
- 2.2.1.9.3. *Discussion*
- 2.2.1.9.3.1. Supports the comment – there are cases where this would be useful.
- 2.2.1.9.3.2. Issue with adding another capability bit for this. Opposes the idea.
- 2.2.1.9.3.3. Supports the intent, but not how it is specified. Would like to allow the station to respond with any priority equal or higher than requested. The specific restriction prevents the station from determining in advance, and puts the decision in the SIFS interval.
- 2.2.1.9.3.4. The station should make the request, not the HC
- 2.2.1.9.3.5. We discussed this issue in Dallas. This capability, or something like it, is already in the draft. Support this if it isn't in the draft.
- 2.2.1.9.3.6. Distributed scheduling – part in the AP and part in the client. How do they get matched and coordinated. We don't standardize scheduling. For a simple client, the scheduler should be in the AP. The client needs to be able to read the TID field and respond accordingly.
- 2.2.1.9.3.7. Is this the right way to implement a polled stream?
- 2.2.1.9.4. *Straw Poll*
- 2.2.1.9.4.1. Who would support a specific TID in CF-Polls? 23
- 2.2.1.9.4.2. Who would not? 9
- 2.2.1.9.4.3. Abstain: 6



- 2.2.1.9.5. *Discussion*
- 2.2.1.9.5.1. The HC specifies which stream will transmit.
  - 2.2.1.9.5.2. If the decision is in a SIFS time, there is an implementation problem.
  - 2.2.1.9.5.3. If there is a specific TID, there are multiple queues.
  - 2.2.1.9.5.4. That is a problem only if the scheduling is only on priority values. That is not the only way to schedule.
- 2.2.1.9.6. *Straw Poll*
- 2.2.1.9.6.1. Assuming we have a specific TID in a CF-Poll, do we allow a response of the specific TID, or allow the "TID or higher"?
  - 2.2.1.9.6.2. Specific: 21
  - 2.2.1.9.6.3. >= : 11
  - 2.2.1.9.6.4. Don't care 7
- 2.2.1.9.7. *Discussion*
- 2.2.1.9.7.1. We should reject the comment. We have been here before, and we don't get 75%.
  - 2.2.1.9.7.2. The TSID should be included in the CF-Poll, but the station should be allowed to respond with any frame. Asking for a straw poll.
- 2.2.1.9.8. *Straw Poll*
- 2.2.1.9.8.1. Who would support including the TSID as a hint, but not mandating responding with that priority? 15:15:6
- 2.2.1.9.9. *Discussion*
- 2.2.1.9.9.1. The length of the granted TXOP already gives a "clue" as to the HC's intention.
  - 2.2.1.9.9.2. There are only two responses – we can either accept or reject. If we accept, there might be more no-votes next time.
  - 2.2.1.9.9.3. We need to reject this. The complexity of a station depend on the options. EG FEC adds complexity. The FEC packets at the head of a queue would have to be pre-coded. There might be security implications as well with pre-encryption requirements.
  - 2.2.1.9.9.4. We have an option to send this issue to an Ad Hoc.
- 2.2.1.9.10. *Straw Poll*
- 2.2.1.9.10.1. Who supports declining? 11
  - 2.2.1.9.10.2. Who supports accepting as is? 11
  - 2.2.1.9.10.3. Who supports with modification for >=? 12
  - 2.2.1.9.10.4. Who supports sending to Ad Hoc? 14
- 2.2.1.9.11. *Discussion*

- 2.2.1.9.11.1. There is no chance of making a decision.
- 2.2.1.9.11.2. The commenter is present this week. Let's get them in here.
- 2.2.1.9.12. *Straw Poll*
- 2.2.1.9.12.1. How many voted in the last straw poll? 32
- 2.2.1.9.13. *Defer - No objections*
- 2.2.1.10. *Comment 1696*
- 2.2.1.10.1. *"The scrambler sync pattern in the service field is transmitted along with the payload at the same rate but it is not protected by the MAC-FEC. Errors in sync pattern will reduce the effectiveness of the MAC-FEC. This issue should be resolved by providing"*
- 2.2.1.10.2. *Defer to FEC discussion*
- 2.2.1.11. *Comment 361*
- 2.2.1.11.1. *"The current MAC FEC scheme is broken when it is used on top of an OFDM PHY. I like to see the group fixing the problem so that the MAC FEC can be really useful."*
- 2.2.1.11.2. *Defer to FEC discussion*
- 2.2.1.12. *Comment 1552*
- 2.2.1.12.1. *"QAP: why required only 4 queues for QAP? I think that QAP should be required to have 8 queues."*
- 2.2.1.12.2. *Discussion*
- 2.2.1.12.2.1. This is a distinction between Access Categories and Queues. HC has a special access category. The HC does not have to implement the normal EDCF, but it can optionally". There was a 9<sup>th</sup> access category for the HC. Reject this comment, and clarify.
- 2.2.1.12.2.2. Suggest that we reject, and say the sentence has been deleted and this is no longer relevant.
- 2.2.1.12.2.3. We should not talk about queues, but access categories. The comment is ill-formed. The access category is in the frame, but not the user priority. You can't get back to the UP.
- 2.2.1.12.2.4. The HC does not need to use 8 access categories. The HC can take the channel with PIFS.
- 2.2.1.12.3. *Straw Poll*
- 2.2.1.12.3.1. The HC does not need to do normal EDCF – one access category: 2
- 2.2.1.12.3.2. The HC should implement normal EDCF:21
- 2.2.1.12.3.3. abstain 6
- 2.2.1.12.4. *Discussion*

- 2.2.1.12.4.1. The commenter confused queues with access categories. Should decline the comment.
- 2.2.1.12.4.2. The minimum of 4 and maximum of 8 is a compromise the group made to allow reduced complexity.
- 2.2.1.12.5. *Straw Poll*
- 2.2.1.12.5.1. How many want to accept the remedy and change the definition to mandate 8 access categories? 3 : 24 : 5
- 2.2.1.12.6. *Discussion*
- 2.2.1.12.6.1. The HC access the channel in one way – after PIFs. The concept of other access categories for the AP is meaningless. The implementation is not constrained.
- 2.2.1.12.7. *Suggested Remedy:*
- 2.2.1.12.7.1. We decline the comment and delete the line (mandating the QAP having multiple queues) in the draft in both occurrences.
- 2.2.1.12.7.2. Accepted without objection
- 2.2.1.13. *Comment 1512*
- 2.2.1.13.1. *“t is widely known that the current MAC FEC scheme is broken when it is used on top of an OFDM PHY, i.e., 11a and 11g. While I am strongly in favor of the MAC FEC scheme, I like to see the group fixing the problem so that the MAC FEC can be really useful.”*
- 2.2.1.13.2. *Defer to FEC discussion*
- 2.2.1.14. *Comment 1513*
- 2.2.1.14.1. *“The benefit of the CC/RR mechanism is not justified while its added complexity for the implementation is expected very high.”*
- 2.2.1.14.2. *Remedy “remove CC/RR”*
- 2.2.1.14.3. *Defer to CC/RR discussion*
- 2.2.1.15. *Comment 1522, 1523*
- 2.2.1.15.1. *Duplicates of 1512, and 1513*
- 2.2.1.16. *Comment 1538, 1538*
- 2.2.1.16.1. *Duplicates of 1512, and 1513*
- 2.2.1.17. *Comment 1855, 1856*
- 2.2.1.17.1. *Duplicates of 1512, and 1513*
- 2.2.1.18. *Comment 1691*
- 2.2.1.18.1. *“The definition of the channel utilization does not measure the interference from other non-802.11 devices that may be sharing the channel such as cordless phones or Bluetooth modules.”*
- 2.2.1.18.2. *Remedy: “Modify the definition of the channel utilization to capture the “effective” utilization of the channel taking into account 802.11 devices and interferers.”*
- 2.2.1.18.3. *Discussion*

- 2.2.1.18.3.1. The channel utilization should be time-based. That would solve this problem. Another comment says the HC should figure out how much time is available on the medium based on what is already allocated.
- 2.2.1.18.3.2. This is asking for taking into account things other than 802.11
- 2.2.1.18.3.3. Refer to comment 725: this resolution would address comment 1691.
- 2.2.1.18.3.4. The issue is in the PHY layer. We have several CCA mechanisms, some will ignore non-802.11 signals. A time based moving average based on carrier detect might be useful, but energy thresholds cannot be specified in the MAC.
- 2.2.1.18.3.5. Agrees – the problem is in the PHY.
- 2.2.1.18.4. *Suggested remedy – accept the change in comment 725. Discuss the implications with the commenter of 1691.*
- 2.2.1.18.5. *Discussion*
  - 2.2.1.18.5.1. Suggests Comment 34 remedy: “Modify the definition of the QBSS load element, in particular the channel utilization value, to be the channel busy time per second as measured by the PHY-CCA.indication(busy) indication.”
- 2.2.1.18.6. *Will take off-line and prepare a combined resolution of these two comment remedies.*

## 2.2.2. Closing

- 2.2.2.1. *There are several commenter we will talk with.*

## 2.2.3. Recess until 7:00

# 3. Tuesday Evening, July 9, 2002

## 3.1. Opening

- 3.1.1. The meeting is called to order at 7:00 by John Fakatselis.
- 3.1.2. The chair moves to Duncan Kitchin

## 3.2. FEC Discussion

### 3.2.1. Opening

- 3.2.1.1. *We have allocated 1 hour for this topic*
- 3.2.1.2. *There are three presentations*
- 3.2.1.3. *Motions are not in order until all points of view have made their case*

### 3.2.2. Proposals

- 3.2.2.1. *Document 02/414r0, Chris Hansen*
- 3.2.2.2. *TI Proposal (review of proposal from last meeting) 02/315*

- 3.2.2.3. *Document 429, Mark Webster*
- 3.2.2.4. *Document 415r1, Mike Lewis*
- 3.2.2.5. *Does anyone want to leave it as is? None*
- 3.2.2.6. *Does anyone want to delete FEC altogether? No.*
- 3.2.2.7. *There are 4 options to choose from*

### 3.2.3. Presentations

- 3.2.3.1. *Document 02/414r0, Chris Hansen, Eric Ojard*
  - 3.2.3.1.1. *An analysis of Dual Precoding (the presentation from the previous meeting)*
  - 3.2.3.1.2. *There is a problem with dual precoding. The moving average filter will cause a loss of .3dB at frame error rates of  $1e-2$ .*
  - 3.2.3.1.3. *A moving average filter combined with a coding system, the bit error is multiplied at worst case by the number of taps in the filter. That expands errors across symbols.*
  - 3.2.3.1.4. *Proposal is to merely transmit two additional bytes of zeros in the MAC header. This allows the scrambler state to be determined in the case of errors.*
  - 3.2.3.1.5. *In the case where the zero locations are non-zero because of error, a lookup table tells you the scrambler state from the non-zero bytes.*
  - 3.2.3.1.6. *Discussion*
    - 3.2.3.1.6.1. *Is the zero byte insertion done prior to FEC coding or after? The FEC bytes would be pre-computed, then the zeros are inserted.*
    - 3.2.3.1.6.2. *Is there normative text for this proposal? Not yet. But it's very simple.*
    - 3.2.3.1.6.3. *Does the .3dB gain assume AWGN? Yes.*
    - 3.2.3.1.6.4. *Are there any patents or patent applications related to this proposal? Not at liberty from my corporation to make an IP statement regarding this proposal.*
- 3.2.3.2. *Document 325r0a, Chris Heegard, et al*
  - 3.2.3.2.1. *Dual Precoding with FEC packets.*
  - 3.2.3.2.2. *Based on proposal from March. First it was a single precoding system with a self-synchronizing scrambler. Without synchronization, an error can prevent synchronization.*
  - 3.2.3.2.3. *The problem is that the MAC headers would be scrambled and would break legacy stations.*
  - 3.2.3.2.4. *There are several ways to get around the .3dB loss due to error propagation. They deal with looking at the header and determining what is wrong, and using that information to fix the rest of the packet.*
  - 3.2.3.2.5. *Discussion*
    - 3.2.3.2.5.1. *Do you know of any patents or patent applications pertaining to this proposal? Any*

patents will be licensed under the IEEE rules of fair and equitable terms.

3.2.3.2.5.2. Are there any results that show the loss is less in a multipath channel? Yes, but not available to present.

3.2.3.2.5.3. AWGN has bursty errors. This would make burst errors even more bursty,, wouldn't it? The effect on the error propagation becomes less significant.

3.2.3.2.6. *Document 429r0, Mark Webster*

3.2.3.2.6.1. Scrambler Mismatch correction using the MAC FEC

3.2.3.2.6.2. Constraints on the solution – MAC and PHY cannot coordinate. The PHY cannot be in the MAC. Stations without FEC can still decode the packet if it is error free.

3.2.3.2.6.3. Needs to provide an error rate of  $10e-9$ . Equal efficiency at short and long frames, no extra overhead. Works for all 802.11 PHYs. Low complexity.

3.2.3.2.6.4. The problem with dual precoding is that is over the whole packet.

3.2.3.2.6.5. Solution, just use dual precoding on the PHY header, and conventional coding on the rest.

3.2.3.2.6.6. Use dual precoding on the first block. Determine the scrambler mismatch and use it for the rest of the packet.

3.2.3.2.6.7. Use the FEC decoder to determine the scrambler mismatch.

3.2.3.2.6.8. Works because the header is shorter than the packet, so the error propagation is smaller.

3.2.3.2.6.9. Also supports the 802.11b PHY.

3.2.3.2.6.10. Discussion

3.2.3.2.6.10.1. This adds complexity at both ends? Why? We think the complexity is low. Most of this comes for free?

3.2.3.2.6.10.2. What is the patent position? Intersil's IP position is described in a letter submitted to the 802.11 chair. Intersil will issue a license on a reasonable and non-discriminatory basis. Alternately, Intersil will issue a royalty free license to any company on request, under the terms described in Intersil's IP statement

3.2.3.2.6.10.3. Do you know of any prior art? Is this a superset of other proposals? Yes, the proposal is based on a previous proposal.

3.2.3.3. *Document 415r1, Mike Lewis*

3.2.3.3.1.

3.2.3.3.2. *Proposal – the transmitter keeps a list of seed values per address.*

- 3.2.3.3.3. *the receiver can synchronize with the transmitter for all rx,tx pairs.*
- 3.2.3.3.4. *If there is an FCS error, you assume it was a scrambler mismatch.*
- 3.2.3.3.5. *If all address,address,seed pairings are stored, any errors can be corrected.*
- 3.2.3.3.6. *Discussion*
  - 3.2.3.3.6.1. *How is the synchronization maintained? Every time an MPDU is received. The scrambler seed is uniquely determined by the previous seed value. There is a unique sequence.*
  - 3.2.3.3.6.2. *Is there a patent position? Cannot make a statement.*
  - 3.2.3.3.6.3. *How does the MAC tell the PHY what seed to use? Is that out of the scope of the PAR? It is written as an option to the standard.*

### 3.2.4. **Straw Polls**

- 3.2.4.1. *Discussion*
  - 3.2.4.1.1. *Would you vote for this proposal? Vote for as many as you like.*
- 3.2.4.2. *How many voters are there? 70*
- 3.2.4.3. *Support for 414r0, Chris Hansen? 20*
- 3.2.4.4. *Support for 325r0a, Richard Williams? 18*
- 3.2.4.5. *Support for 429r0, Mark Webster? 15*
- 3.2.4.6. *Support for 415r1, Mike Lewis? 1*

### 3.2.5. **Motions from the Floor**

- 3.2.5.1. *Based on the fact that we don't have 75% for all of these together, we don't have a solution*
- 3.2.5.2. *Move to direct the editor to drop FEC from the TGe draft*
  - 3.2.5.2.1. *Moved Williams*
  - 3.2.5.2.2. *Second Williams*
- 3.2.5.3. *Discussion*
  - 3.2.5.3.1. *Against the motion. The benefits of FEC have been demonstrated. Removing FEC because we can't agree is a bad idea.*
  - 3.2.5.3.2. *For the motion – the number of new contributions indicates that FEC is immature. Supports withdrawing and considering it for a future standard.*
  - 3.2.5.3.3. *Given that people are still working, it is not the time to take it out.*
- 3.2.5.4. *Move to table the motion*
  - 3.2.5.4.1. *Kowalski / Hansen*
  - 3.2.5.4.2. *Vote on tabling the motion: Fails 23:48:10*
- 3.2.5.5. *Discussion*

- 3.2.5.5.1. *Against the motion. After seeing the work on solutions, taking it out doesn't make sense. We have workable solutions.*
- 3.2.5.5.2. *Against the motion – a lot of effort has gone into FEC. We need a merged proposal.*
- 3.2.5.5.3. *In favor – believe that the MAC is the 2<sup>nd</sup> choice place to apply FEC. We need a PHY solution. There is a big issue with IP issues, some have not been disclosed and might trap us all. It will encumber smaller companies. We are treading on a minefield.*
- 3.2.5.5.4. *Against – We can wait years for this. We need to deliver products. These presentations show this can be fixed now in this standard.*
- 3.2.5.6. *Call the question (Kowalski/ Sherman) No Objection*
- 3.2.5.7. *Vote on the motion: Fails 41:31:8*

### 3.3. AP Mobility Discussion

#### 3.3.1. Opening

- 3.3.1.1. *There are comments in two categories – 1) AP mobility should be deleted on the grounds that it fails with hidden nodes. 2) Comments on the ranking order of stations.*

#### 3.3.2. Presentations?

- 3.3.2.1. *None*

#### 3.3.3. Straw Polls

- 3.3.3.1. *Should we keep AP mobility? 16:20:8*
- 3.3.3.2. *Discussion*
  - 3.3.3.2.1. *The naming is misleading and confusing. Mobility is a bad word since it suggests movement.*
- 3.3.3.3.
- 3.3.3.4. *How many people will vote no if AP mobility (as currently defined, plus any fixes) is in the draft (on this basis)? 15*
- 3.3.3.5. *How many people will vote no if AP mobility (as currently defined, plus any fixes) is NOT in the draft (on this basis)? 16*
- 3.3.3.6. *Discussion*
  - 3.3.3.6.1. *We should not waste time debating this. We will not make people happy whatever we do.*
  - 3.3.3.6.2. *Move on to the other main comment regarding hidden nodes.*
- 3.3.3.7. *Should we attempt to fix hidden nodes within AP mobility? 19:14:13*
- 3.3.3.8. *Discussion*
  - 3.3.3.8.1. *AP Mobility is a great idea, but maybe it doesn't belong in TGe and QoS.*
  - 3.3.3.8.2. *Why is AP Mobility here? It enables parameterized QoS in portable devices? It cannot be done*



*in an IBSS. This function is extremely necessary for AV applications. We should not remove it, but fix it.*

3.3.3.8.3. *The concept of AP mobility is useful, but broken and too complicated.*

3.3.3.8.4. *The majority favor fixing the problem, and simplifying is popular also.*

3.3.3.8.5. *We have no specific proposals to fix or modify the draft. We need such a proposal to move forward. Those interested need to go off and write a proposal.*

3.3.3.8.6. *It makes sense for an ad-hoc to review the negative votes. Is there any meeting time for this? This time now is set aside for AP mobility.*

#### **3.3.4. Ad Hoc work**

3.3.4.1. *The ad hoc should go through the comments related to AP mobility and classify them. Create a lists of changes to drive the creation of modifications to normative text.*

3.3.4.2. *The Ad Hoc Group will come back with a proposal.*

### **3.4. Recess TGe at 9:00PM for Ad Hoc**

## **4. Wednesday Morning, July 10, 2002**

### **4.1. Opening**

4.1.1.

4.1.2. **The meeting is called to order by John Fakatselis at 8:00**

4.1.2.1. *This was going to be a joint meeting with TGg. However there was no other joint business other than the FEC, so we are going to have only a TGe meeting at this point.*

4.1.3. **Status of the Task Group**

4.1.3.1. *In Task Group B, everyone was present for all discussion, and the growth of the group was very low. We were able to converge quickly.*

4.1.3.2. *Now we have about 350 voters. We have only 50 voting members participating in these meetings, and some percent of them are participating regularly.*

4.1.3.3. *That is a small percentage to represent the whole voting body.*

4.1.3.4. *The lower approval rating of the last LB was lower because of many new voters voting no. The quality of the draft was much better.*

4.1.3.5. *We have spent a lot of time improving the document since LB30.*

4.1.3.6. *We don't want to have an open ended procedure. We don't have any way to update the schedule, or have a plan to complete the work, if we continue in the same manner.*

4.1.3.7. *We don't want to waste our time and be sure the members want to see a standard.*

**4.1.4. Discussion**

4.1.4.1. *Some members have a problem with the complexity of the standard, not necessarily having a standard at all.*

4.1.4.2. *Maybe you shouldn't limit it to voters only. Perhaps add nearly voters.*

**4.1.5. Straw Polls**

4.1.5.1. *How many people believe we do not need a standard for QoS? zero*

4.1.5.2. *How many people feel that we must have a standard through sponsor ballot by March 2003? 44*

4.1.5.3. *How many believe that we can wait until March 2004? 11*

4.1.5.4. *How many think time is not an issue as long as we have it done in the next decade? 1*

4.1.5.5. *How many did not participate? 4*

**4.1.6. Conclusions**

4.1.6.1. *The value of the 75% acceptance – if we get 75%, then two things happen. We freeze as closed issues everything that there isn't a comment on. We are going to limit the voting participation to those that submitted comments in this draft.*

4.1.6.2. *One way out of this is to get to the 75% threshold. The benefit is that we then have specific issues and specific no voters we must convince.*

**4.1.7. Discussion**

4.1.7.1. *Complexity – the existing standard was the most complex MAC ever designed. A lot of people are making a lot of money on it, because it works. Unless you have a better way to achieve the objectives, don't try to take out what's there. Complexity is an issue, but it also has to work. It's not a reason to kill things unless there is a better solution available.*

4.1.7.2. *The chair agrees that the existing MAC is complex, but it is also successful. It is not good to have options on a standard. It has been used as a tool of compromise.*

4.1.7.3.

**4.1.8. Straw Poll**

4.1.8.1. *How many people are voting No because they think the standard is too complex (over engineered)? 4*

4.1.8.2. *How many are voting No for other reasons than over-engineering?*

**4.1.9. Discussion**

4.1.9.1. *QoS has come to mean all things to all people. We would approach it in a different manner. There are many different needs and factions (Consumer, Enterprise, and AV). We are trying to create a single standard to accommodate all these needs. There is a desire for broad market appeal so all chips can support this. Because we are so fragmented, it is impossible to move forward. We can't require everything, so we almost have to go to an options based approach. We may need more options. For example an enterprise system might not want to support all the capabilities of an AV device.*

4.1.9.2. *There are different kinds of options – multiple ways of doing the same thing, vs. doing something or not doing something.*

**4.1.10. Straw Poll**

4.1.10.1. *How many people believe that having options would help us create a standard? 33*

4.1.10.2. *How many believe that options are not a reasonable way to closure? 7*

4.1.10.3. *How many people would like to have separate standards for each market area? 10*

**4.1.11. Discussion**

4.1.11.1. *If we have separate task groups, there is a big problem reconciling all the frame formats and bits etc.*

**4.1.12. Straw Poll**

4.1.12.1. *How many people believe that getting a 75% approval would be the best way to move towards to closure? 37*

4.1.12.2. *How many think trying to get 75% approval is not wise? 0*

4.1.12.3. *How many did not participate? 10*

**4.1.13. Chairs comments**

4.1.13.1. *The chair asks for those who abstained or know those who abstained, to consider changing their abstain to a Yes vote. That would get us closer to a 75%.*

4.1.13.2. *How many abstainers are in the room? None.*

4.1.13.3. *Some members have submitted the same comment files. The chair would like those who voted that way to assign one person to carry the objections, and change the other votes to a Yes with comments. We could gain 25 reversals with that approach.*

4.1.13.4. *We have 120 No Votes, but less than 30 here. Please communicate with other voters this information.*

**4.1.14. Straw Polls**

4.1.14.1. *How many No voters are in the room? 17*

4.1.14.2. *How many No Voters would consider switching to a Yes if there were more options? Zero*

#### 4.1.15. Discussion

4.1.15.1. *Likes the approach to combine No Votes into a single ballot. Cautions that TGf will be going to forward to Sponsor Ballot. In the past there has been a 90% threshold for sponsor ballot, but perhaps it has gone away. So there is not necessarily a guarantee that all comments will be addressed.*

4.1.15.2. *TGf says the rules require 75%. If the sponsor group decides that it is really 90% then they need to write that down as a rule. We can't draw any conclusions yet.*

4.1.15.3. *We have less than 10% of the No Voters present in this room.*

4.1.15.4. *Request for straw poll: Who of the No Voters voted to submit this draft to Letter Ballot in Sydney?*

4.1.15.5. *Suggests that the TGe chair request all TGe No Voters to show up in the TGe meeting.*

## 4.2. Assigned Numbers Authority

### 4.2.1. The chair moves to Duncan Kitchin

#### 4.2.2. Discussion

4.2.2.1. *All the numbers collided, with an exception of a handful.*

4.2.2.2. *Document 02/381r1 will contain the initial assignments as of the close of the May 2002 meeting.*

4.2.2.3. *Element IDs 11-15 for TGe did no collide.*

4.2.2.4. *Motion: Request the ANA to assign element IDs for the following elements: Extended Capability; Target Destination Address; Target enable status; location discover status; Current transmit rate; TCلاس.*

4.2.2.4.1. *Moved Kitchin*

4.2.2.4.2. *The chair moves to John Fakatselis*

4.2.2.4.3. *Second David*

4.2.2.4.4. *Discussion*

4.2.2.4.4.1. *We need only two of these – We should wait on asking for these until we have subsequent technical motions.*

4.2.2.4.4.2. *We should assign the numbers now. If not needed, we can easily delete them later.*

4.2.2.4.4.3. *This is the first group to make a request.*

4.2.2.4.4.4. *Could we make the motion now, but make it effective at the end of the week?*

4.2.2.4.4.5. *This is just a bookkeeping problem. We should just approve this.*

- 4.2.2.4.4.6. Call the question ( Keith / John K)  
Called with no objection.
- 4.2.2.4.5. Vote: Passes 41:0:1
- 4.2.2.5. Motion: Request the ANA to assign the following  
capability bits: QoS ; FEC-Imm-Ack.
- 4.2.2.5.1. Moved Kitchin
- 4.2.2.5.2. Second Keith
- 4.2.2.5.3. Discussion
- 4.2.2.5.3.1. What if we run out of bits? We have  
an escape bit, but the WG will have to assign it.  
There is also a mechanism to appeal assignments.
- 4.2.2.5.4. Vote: Passes 45:0:1

### 4.3. Recess at 10:00AM

## 5. Wednesday, July 10, 2002,

### 5.1. Opening

- 5.1.1. The meeting is called to order at 1:00PM by John Fakatselis
- 5.1.2. The chair moves to Duncan Kitchin

### 5.2. EDCF simplification

#### 5.2.1. Background

- 5.2.1.1. The comment was to consider 02/214r0 as a  
simplification. The group didn't want to adopt that document,  
but there was a straw poll indicating the group wanted to  
simplify EDCF.
- 5.2.1.2. Are there any new proposals?

#### 5.2.2. Discussion

- 5.2.2.1. We could remove AIFS
- 5.2.2.2. Is there specific text? We could instruct the editor to  
remove all references...
- 5.2.2.3. Straw Poll – Who would favor keeping AIFS in the  
draft? 21:9:7
- 5.2.2.4. Is there anything to do with the EDCF Parameter Set?  
Refer to comment 366 "The QoS Parameter Set Count  
suggests that the QoS Parameter Set could be used for  
dynamic adaptation of the EDCF parameters. However, this  
should not be the case because it compromises the EDCF  
performance and predictability in overlap situations...."
- 5.2.2.4.1. Remedy: "Add the following text to this clause:  
""The QoS Parameter Set shall not be used for dynamic  
parameter updates. This ensures predictable behavior in  
overlapping BSSes" "Remove the QoS Parameter Set  
Count field and all references thereto

- 5.2.2.4.2. *Suggest that this parameter set element should not be used for dynamic updates.*
- 5.2.2.5. **Straw Poll**
- 5.2.2.5.1. *EDCF Parameter Updates: Options*
- 5.2.2.5.1.1. None – default parameters only
- 5.2.2.5.1.2. Use to set policy only
- 5.2.2.5.1.3. Use for dynamic adaptation
- 5.2.2.6. **Discussion**
- 5.2.2.6.1. *Why would you want to limit the usage? Since now AP is required to implement dynamic adaptation, why change it?*
- 5.2.2.6.2. *If there is two overlapping BSS's if one has best effort and the other is best effort. The best effort BSS might increase the priority of the best effort traffic and hurt the video.*
- 5.2.2.6.3. *Dynamic adaptation is good. It opens up 802.11 for future enhancements in future APs. Dynamic adaptation allow the system to perform better.*
- 5.2.2.7. **Straw Poll**
- 5.2.2.7.1. *EDCF Parameter Updates:*
- 5.2.2.7.1.1. None – default parameters only, remove parameter set from the beacon. 15
- 5.2.2.7.1.2. Use to set policy only, no dynamic updates. (“should” clause in draft) Parameters fixed for lifetime of BSS. 26
- 5.2.2.7.1.3. Use to set policy only, no dynamic updates. (“should” clause in draft) Parameters change rarely. 20
- 5.2.2.7.1.4. Use for dynamic adaptation (as it is now in the draft). 14
- 5.2.2.7.1.5. All voters in room. 53
- 5.2.2.8. **Inverse straw poll**
- 5.2.2.8.1. *Who will vote “No” if the draft says*
- 5.2.2.8.1.1. None – default parameters only, remove parameter set from the beacon. 20
- 5.2.2.8.1.2. Use to set policy only, no dynamic updates. (“should” clause in draft) Parameters fixed for lifetime of BSS. 12
- 5.2.2.8.1.3. Use to set policy only, no dynamic updates. (“should” clause in draft) Parameters change rarely. 8
- 5.2.2.8.1.4. Use for dynamic adaptation (as it is now in the draft). 20
- 5.2.2.8.1.5. Total Voters - 53
- 5.2.2.9. *Move to instruct the editor to modify the normative text to insert a “should” clause referring to the EDCF parameter set element, indicating that this is intended to set policy and should be change by an AP only rarely (of the order of greater than 100 beacon intervals).*

- 5.2.2.9.1. *Moved Kowalski*
- 5.2.2.9.2. *Second Kandala*
- 5.2.2.9.3. *Discussion*
  - 5.2.2.9.3.1. This only changes the implementation of the AP, not the station.
  - 5.2.2.9.3.2. Motion to amend – remove the last sentence ( menzo/ srini)
  - 5.2.2.9.3.3. Call the question / no objection
  - 5.2.2.9.3.4. Vote on the motion to amend:  
passes 31:3:15
- 5.2.2.10. *Main Motion: Move to instruct the editor to modify the normative text to insert a “should” clause referring to the EDCF parameter set element, indicating that this is intended to set policy and should be change by an AP only rarely.*
  - 5.2.2.10.1. *Call the question (Menzo/John) no objection*
  - 5.2.2.10.2. *Vote: passes 33:7:15*

### 5.3. TSpec / Signaling

#### 5.3.1. Presentation of Papers

- 5.3.1.1. *Document 407r1 “TS Signaling” Jin Meng*
  - 5.3.1.1.1. *Discussion*
    - 5.3.1.1.1.1. How does this fit in with other proposals with TSpec? This is orthogonal – it defines the signaling procedures.
    - 5.3.1.1.1.2. Feels this breaks the mechanisms – opposed to this presentation.
- 5.3.1.2. *Document 383r2a John Kowalski*
  - 5.3.1.2.1. *These fields are orthogonal to Jin Meng’s presentation.*
  - 5.3.1.2.2. *The HC can know if the bandwidth allocation is not workable*
  - 5.3.1.2.3. *Suggests a normative scheduler behavior. Parameters are isomorphic. It looks like the queue state element, plus an admission policy.*
  - 5.3.1.2.4. *This proposal simplifies the TSpec, the HC can infer TSpec violations. It can interoperate with an AP in a side link.*
  - 5.3.1.2.5. *It is testable and observable.*
  - 5.3.1.2.6. *Discussion*
    - 5.3.1.2.6.1. Is there any change in queue spec vs. time position? No, the queue size is still useful.
- 5.3.1.3. *Document 406r0 “Normative Text for TSPEC” Adrian Stephens*
  - 5.3.1.3.1. *This requirement comes from 802.15.2.*
  - 5.3.1.3.2. *Background on AWMA collaborative mechanism – divides time into BT and 802.11 periods. Fixed time intervals.*

- 5.3.1.3.3. *Define a new traffic type – “Scheduled”, repeating. Add TSPEC element “field map”*
- 5.3.1.3.4. *Support for AWMA is optional.*
- 5.3.1.3.5. *During the scheduled time, the HC must provide NAV protection*
- 5.3.1.3.6. *A registered multicast MAC address is used to identify the AWMA schedule.*
- 5.3.1.3.7. *Discussion*
  - 5.3.1.3.7.1. *Are there any IP positions on this proposal? Symbol has an IP letter in on this saying they will follow the IEEE rules.*
  - 5.3.1.3.7.2. *How do the devices communicate? The AP has knowledge of the AWMA period.*
  - 5.3.1.3.7.3. *We had scheduled TXOPs in the draft before, and removed them. How is this different? It is not signaled, but just reserved time? We didn't have a good use for scheduled TXOPs at the time they were removed.*
- 5.3.1.4. *Document 409r2, “Proposed Resolution for Draft 3.0” Isaac*
  - 5.3.1.4.1. *TSPEC Element Set*
  - 5.3.1.4.2. *Discussion*
    - 5.3.1.4.2.1. *Is this in conflict with other proposals?*

### 5.3.2. Straw Poll

- 5.3.2.1. *Support 407r1 (Jin Meng) : 6*
- 5.3.2.2. *Support 383r2 (John K): 24*
- 5.3.2.3. *Support 406r0 (Adrian) Structural: 21*
- 5.3.2.4. *Support 406r0 (Adrian) AWMA: 19*
- 5.3.2.5. *Support 409r2 (Isaac) 22*
- 5.3.2.6. *Total Voters 53*

### 5.3.3. Discussion

- 5.3.3.1. *Unless there is another proposal, we don't have 75%.*
- 5.3.3.2. *Could the proposers come up with an aggregated proposal?*

### 5.3.4. Motions

- 5.3.4.1. *Move to instruct an ad-hoc to create draft normative text incorporating the mechanisms presented in straw polls regarding 406r1, 383r0, 409r2.*
  - 5.3.4.1.1. *Moved Adrian Stephens*
  - 5.3.4.1.2. *Seconded Srin*
  - 5.3.4.1.3. *Discussion*
    - 5.3.4.1.3.1. *The straw poll said “do nothing”*
    - 5.3.4.1.3.2. *This proposal includes three of the four proposals*
    - 5.3.4.1.3.3. *There were four good presentations – the ad-hoc should generate text for all of them.*



- 5.3.4.1.3.4. Move to amend to add "407" to the list. (Lior / Matthew)
- 5.3.4.1.3.5. The three presentations in the motion are orthogonal. 407 is in conflict.
- 5.3.4.1.3.6. 407r1 is nothing new – just new details from comments
- 5.3.4.1.3.7. Call the question ( Kowalski/Sherman) no objection
- 5.3.4.1.3.8. Vote on the motion to amend: fails 16:23:19
- 5.3.4.1.3.9. Call the question ( Kowalsi / Jose) no objection
- 5.3.4.1.4. *Vote on the main motion: passes 40:5:12*

**5.3.5. Recess at 3:00PM**

**5.3.6. Call to order at 3:30PM**

## **5.4. CC/RR Discussion**

### **5.4.1. Presentation of Papers**

- 5.4.1.1. *Document 408r0, Jin Meng*
- 5.4.1.2. *"Group Polling for DCF Based Reservation Request"*
- 5.4.1.3. *A compromise for the CC/RR debate.*
- 5.4.1.4. *Controlled Contention is group polling*
- 5.4.1.5. *Discussion*
  - 5.4.1.5.1. *Why are there 6 elements in a bitmap? In practice there are not more than 6 queues. It fits into a single OFDM symbol at 54Mbps.*
  - 5.4.1.5.2. *Has this been simulated? It is a technical improvement. The RR frame previously occupies 200uS. It is not simulated yet.*
  - 5.4.1.5.3. *Is there any IP on this? Cannot answer, but doesn't think there are substantial issues.*
  - 5.4.1.5.4. *Thinks it is good to reconsider RR. Not sure if this improves RR or not without simulation. Most arguments for CCI are based on lack of information on the need for RRs. If there are enough RRs that EDCF cannot get them through, then something like the CFP should be allocated and reserved for reservation requests (using the normal EDCF mechanisms).*
  - 5.4.1.5.5. *This does reduce the complexity of CC/RR. It does reduce the numbers of mechanisms. You don't have to send an RP if the channel is free. That is already there.*
  - 5.4.1.5.6. *Concerned about unnecessary overhead. HC shall have an RP every beacon on a DTIM basis.*
  - 5.4.1.5.7. *We have just passed motions to modify TSpecs with a management frame, and management frames are always at highest priority, why do we need CC/RR?*
- 5.4.1.6. *Straw Poll*

5.4.1.6.1. To replace the CC-RR controlled contention mechanism as described in the current IEEE 802.11e draft standard with the RP-RR request polling mechanism as described in slides 7-14 of document 408r0 for the 802.11e draft standard. 12:9:13

5.4.1.7. Motion: Instruct the editor to remove CC/RR and all references thereto from the draft.

5.4.1.7.1. Greg Chesson

5.4.1.7.2. Steve Williams

5.4.1.7.3. Discussion

5.4.1.7.3.1. CC/RR is used in large networks with many terminals that are inactive for a large part of the time. A quick way to get on and off the polling list.

5.4.1.7.3.2. Simulations have been presented showing the value, and compared with other options. It was clearly the best of the options.

5.4.1.7.3.3. The idea of replacing the slotted aloha mechanism with EDCF has not been simulated. There is a hidden terminal problem. With EDCF a single collision can overlap multiple slots.

5.4.1.7.3.4. There are other options beyond what Jin Meng proposed.

5.4.1.7.3.5. There were a number of ballots against CC/RR with other types of resolutions – EG how often you send a CC.

5.4.1.7.3.6. This is one of the key elements needed for QoS. It has been fully simulated and shared over the past two years. It has been in actual trials and real users have been using CC/RR with real QoS services. We can show that it works, it makes money, and reduces risk. It costs little to do this – if it isn't used it will fade away. It is needed as a standard.

5.4.1.7.3.7. We want to make sure the mechanism for the polling list is efficient. No other proposal for returning to the polling list works well. So what is the objection? Is top priority EDCF good enough? Can it be improved?

5.4.1.7.4. Straw Poll –

5.4.1.7.4.1. Is RR over EDCF with high priority an acceptable alternative to CC/RR? 22:9:16

5.4.1.7.5. Discussion

5.4.1.7.5.1. We did simulate RR over EDCF. The performance was not acceptable. There are three documents of simulations. Other ideas have been eliminating mandatory CCI intervals.

5.4.1.7.5.2. Some simulations were presented in March, and the conclusion was that CC/RR was not needed. For bursty traffic, the HC would not poll. The RR would add it to the polling list. Do we really need fast request for burst?

- 5.4.1.7.5.3. Call the question (John K/ Srinu) No objection
- 5.4.1.7.6. *Vote on the motion: Fails 34:15:8*
- 5.4.1.8. *Motion: to make CCI optional at both the AP and STA in the draft.*
- 5.4.1.8.1. *Moved Kowalski*
- 5.4.1.8.2. *Second Kandala*
- 5.4.1.8.3. *Discussion*
- 5.4.1.8.3.1. We have spent enough time on this
- 5.4.1.8.3.2. Move to table the motion
- 5.4.1.8.3.2.1. Schrum / Ophir
- 5.4.1.8.3.2.2. Vote fails 9:26:8
- 5.4.1.8.3.3. This is the best compromise we can get. Nobody is going to test this.
- 5.4.1.8.3.4. If we make this optional does it make the HC optional? We want to make HCF work well. How would this work?
- 5.4.1.8.3.5. These instructions are not clear enough. We don't know what the editor is going to do.
- 5.4.1.8.3.6. Agree that the instructions are not clear. The issue is making it optional at both AP and STA, another signaling and negotiation mechanism is needed. This is the right concept but not the right text to accomplish it.
- 5.4.1.8.3.7. What this says that it is not convergent. There are three contingents here. This makes it work only in some situations. We have an opportunity to move 802.11 into the future to handle many types of traffic. We need to make sure it is there.
- 5.4.1.8.3.8. Motion to amend: "to instruct the editor to make CCI optional in such a manner that the capability for the HC to transmit CC is optional and for the WSTA to receive CC and transmit RR is optional. "
- 5.4.1.8.3.8.1. Sunghyun / Adrian
- 5.4.1.8.3.8.2. Vote – accepted without objection
- 5.4.1.9. *Motion as amended: To instruct the editor to make CCI optional in such a manner that the capability for the HC to transmit CC is optional and for the WSTA to receive CC and transmit RR is optional*
- 5.4.1.9.1. *Discussion*
- 5.4.1.9.1.1. Options are generally bad, but this accommodates both sides best.
- 5.4.1.9.1.2. Call the question (Adrian/John K) no objection
- 5.4.1.9.2. *Vote on the motion: fails 29:13:4*

## 5.5. WARP / Side Traffic

### 5.5.1. Papers to present

- 5.5.1.1. 437 Srinu "Information element in fixed fields"
- 5.5.1.2. 438 Srinu "Changes to WARP"
- 5.5.1.3. 465 Wim "

### 5.5.2. Presentations

- 5.5.2.1. "Changes to WARP" doc 437r0a
  - 5.5.2.1.1. uses four elements out of 256 –change them to fixed fields.
  - 5.5.2.1.2. Normative text in 437r0
  - 5.5.2.1.3. Discussion
    - 5.5.2.1.3.1. There is other information that needs to be communicate through this interface. Elements provides a clean extension for TG1 to add security functions.
    - 5.5.2.1.3.2. Not concerned about running out of element IDs – there is an extension mechanism already present.
- 5.5.2.2. "Direct Stream Request Protocol" Doc 421r1, Menzo Wentink
  - 5.5.2.2.1. Addresses a comment regarding WARP.
  - 5.5.2.2.2. Signaling mechanism to set up streams between two stations in a BSS
  - 5.5.2.2.3. Suggest that the name be changed to Direct Link Protocol due to the existing use of stream in the draft.
  - 5.5.2.2.4. Activation works through the AP, the AP responds to the sender.
  - 5.5.2.2.5. Probing is used to determine connection and rate between sender and receiver.
  - 5.5.2.2.6. Discussion
    - 5.5.2.2.6.1. There is no explicit teardown? An idle timeout is flexible and has no overhead. An explicit teardown could be added.
    - 5.5.2.2.6.2. There are frames to do this already. Why don't we use the stream setup procedure to achieve the same purpose?
  - 5.5.2.2.7. There is normative text for this proposal.
- 5.5.2.3. "Wireless Sidelink Protocol" document 465r0, Wim Diepstraten.
  - 5.5.2.3.1. Identifies if a station can send frames directly.
  - 5.5.2.3.2. Existing WARP is too complex
  - 5.5.2.3.3. Wisp is simpler – uses single Wakeup Action request/response pair and procedure. Uses existing probe request frames.
  - 5.5.2.3.4. WiSP should replace WARP
  - 5.5.2.3.5. Discussion

- 5.5.2.3.5.1. Very similar to the previous presentation – are there any differences? The wakeup action frame is a minimum. The parameters are in the probe response frames. Similar response in the timeout response.

## 5.6. Recess at 5:30PM

# 6. Thursday, July 11, 2002

## 6.1. Opening

6.1.1. **The meeting is called to order at 8:00AM by John Fakatselis**

6.1.2. **Discussion**

6.1.2.1. *No vote reversals have been received so far.*

6.1.2.2. *We need to communicate to the group that the broadest standard is OK – the alternative is no standard at all.*

6.1.3. **Call for papers**

6.1.3.1. *Srini has one that is not on the server*

## 6.2. WARP / Side Traffic (continued)

6.2.1. **Presentations**

6.2.1.1. *“Wireless Sidelink Protocol” document 465r0, Wim Diepstraten.*

6.2.1.1.1. *Discussion*

6.2.1.1.1.1. How does WISP work when the receiver is in the sleep/PS mode? The receiver is awake for a certain no-activity timeout period. It is the same for TX and RX side.

6.2.1.1.1.2. What is the order of the timeout? Roughly 2 beacon intervals.

6.2.1.1.1.3. But the AP has to wait till the next DTIM, that could exceed the timeout? That's a different timeout – the TX station determining no response initially.

6.2.1.1.1.4. What are the differences between WISP and Menzo's proposal? The point at which the rate set is brought to the receiver. Menzo provides the capability info in the response frame initially. Wim's takes one more message.

6.2.1.1.1.5.

6.2.1.1.2. *Straw Poll (vote for many)*

6.2.1.1.2.1. Menzo Wentink (421r0) 26

6.2.1.1.2.2. Wim Diepstraten (465r0) 30

6.2.1.1.2.3. Support WARP as is: 2

6.2.1.1.2.4. All Voters in room: 39

- 6.2.1.1.3. *Discussion*
- 6.2.1.1.3.1. Feedback is needed on the necessity of a probe frame to test rates. That is the main difference.
- 6.2.1.1.3.2. Perhaps the QoS null frame could be used?
- 6.2.1.1.3.3. Request an ad-hoc group to create Wim/Menzo combined normative text.
- 6.2.1.1.3.4. Menzo will lead and come back to report to the group. They will meet at 1:00PM and report at the next session.

### **6.3. 802.1d annex H – mapping priorities**

#### **6.3.1. Presentations/**

6.3.1.1. *None*

#### **6.3.2. Discussion**

- 6.3.2.1. *There were many comments on this topic. What should we do?*
- 6.3.2.2. *This is a confusing area, there are no existing guidelines. There are guidelines in RFC2815 that are consistent with 802.1d*
- 6.3.2.3. *The problem is there is no priority below best effort.*
- 6.3.2.4. *The comment is regarding level 0 being the lowest level as currently written.*
- 6.3.2.5. *There is an inherent problem with EDCF if you say 0 is not the lowest. EDCF requires 0 is the lowest priority, and the number of access categories in a station.*
- 6.3.2.6. *802.1d has two priorities below 0 (best effort), but one is reserved. Do we really need a priority lower than best effort?*
- 6.3.2.7. *Why is there a problem having a priority below legacy? We are creating a standard that precludes the 802.1d guidelines. We should at least have mapping that follow these guidelines.*
- 6.3.2.8. *We have a specific comment that says “we should not require 0 to be the lowest priority”. There is no mandate that best effort be mapped to 0.*
- 6.3.2.9. *Is there really a problem with mapping. The priority maps to user priority, not access category. If we mapped best effort traffic to UP 0, then it would work.*
- 6.3.2.10. *The real issue is should there be any priority below best effort?*
- 6.3.2.11. *Is there a change that needs to be made to the draft?*
- 6.3.2.12. *Move that the editor remove the requirement that 0 must be the lowest priority, and the table of recommended user priority values.*
- 6.3.2.12.1. *Moved Meier*

- 6.3.2.12.2. *Second Kuehnel*
- 6.3.2.12.3. *Discussion*
- 6.3.2.12.3.1. There may be some expectation that 0 is the lowest might cause new no votes.
- 6.3.2.12.3.2. Doesn't think that there is that expectation. Applications are choosing priorities at the application level.
- 6.3.2.12.3.3. There is no such thing as "priority" is it user priority or access category. Which is this referring to?
- 6.3.2.12.3.4. Agree that this needs to be more specific. Can we simply vote to accept the comment?
- 6.3.2.12.3.5. The motion as worded is an acceptance of the comment.
- 6.3.2.12.3.6. The comment we are trying to address (218)
- 6.3.2.12.3.6.1. ""The QoS facility supports 8 "user priority" values designated 7 (highest) through 0 (lowest)."" Would it make sense to link these user priorities with those in 802.1D (Table H)? There are also 8 priority values defined there, but user priority 0 is"
- 6.3.2.12.3.6.2. Suggested remedy "State that the QoS facility provides for 8 user priority levels, but do not require that 0 be the lowest level (since we have defined 0 to be the level for non QoS-enabled device traffic.) Using the levels in 802.1D may make the most sense."
- 6.3.2.12.3.7. If we accept this motion, we can say we have accepted this.
- 6.3.2.12.3.8. The commenter wants to not mandate best effort to be the lowest priority.
- 6.3.2.12.3.9. One resolution is to not require best effort be 0, the other is to not require 0 to be the lowest priority.
- 6.3.2.12.3.10. 802.1d wanted 0 to be the default, they created one other level for background.
- 6.3.2.12.3.11. It should be left the way it is. Why not base it on the class selectors in DIFFSERV which is 0 is the lowest.
- 6.3.2.12.3.12. We need to make sure to handle the case of a station implementing one access category.
- 6.3.2.12.3.13. The motion only removes the sentence saying 0 is the lowest.
- 6.3.2.12.4. *Motion to amend to "Instruct the editor to remove the requirement that 0 be the lowest priority and 7 be the highest priority."*
- 6.3.2.12.4.1. Moved Choi
- 6.3.2.12.4.2. Second Meier
- 6.3.2.12.4.3. Discussion

- 6.3.2.12.4.3.1. This will cause more confusion if passed.
- 6.3.2.12.4.3.2. This will be more confusing for choosing the access category parameters. This is saying remove the ordering, without replacing it.
- 6.3.2.12.4.4. Motion to amend the motion – strike “and 7 be the highest priority”.
- 6.3.2.12.4.4.1. Kowalski / Ed
- 6.3.2.12.4.4.2. Discussion
  - 6.3.2.12.4.4.2.1. *You can't remove part – if zero is not the lowest, 7 can't be the highest. There is no inherent ordering.*
  - 6.3.2.12.4.4.2.2. *Maintaining some ordering of the priorities makes a simpler design.*
  - 6.3.2.12.4.4.2.3. *Everyone has the same intent – this should be handled off-line.*
  - 6.3.2.12.4.4.2.4. *call the question (Choi/Jose) no objection*
- 6.3.2.12.4.4.3. Vote on the motion to amend the amendment: procedural fails 1:10:21
- 6.3.2.12.4.5. Vote on the motion to amend: 14:9:8
- 6.3.2.13. *Motion on the floor: “Instruct the editor to remove the requirement that 0 be the lowest priority and 7 be the highest priority.”*
  - 6.3.2.13.1. *Move to table (Kowalski / Choi)*
    - 6.3.2.13.1.1. Vote on motion to table: Passes 28:2:10

## 6.4. Other Papers

### 6.4.1. Document 444r0, “HCF Duration Field Set Rules”, Sunghyun Choi

- 6.4.1.1.1. *Addresses inconsistencies in Duration/ID field values in different frame types.*
- 6.4.1.1.2. *Proposes modifications of NAV coverage rules for frame exchange sequences.*
- 6.4.1.1.3. *It was noted that this proposal would not work with mixed data rates in TGg as is.*
- 6.4.1.2. *Straw Poll*
  - 6.4.1.2.1. *Who would support the behavior as presented in 444r0a? 16*
  - 6.4.1.2.2. *Who would not support the behavior as presented in 444r0a? 3*
  - 6.4.1.2.3. *Who would support the behavior as presented in 444r0a with modifications? 20*
- 6.4.1.3. *Will generate normative text with a modified version of this for a motion later.*



- 6.4.2. Document 427r0a, “Recommended Practice for use of 802.11e for broadcast quality AV transmission”, John Kowalski et al.**
- 6.4.2.1.1. *Hoping to create an informative annex for the standard based on this material. Application scenarios, recommended parameters.*
  - 6.4.2.1.2. *Need interoperability between multiple vendors. Not assuming a traditional infrastructure LAN with DS.*
  - 6.4.2.2. **Discussion**
    - 6.4.2.2.1. *How is RTP mapped into parameterized QoS? How is connection setup dealt with? It needs to be worked out at the higher layers.*
    - 6.4.2.2.2. *Does this support SMPTE requirements with respect to jitter requirements in studios? No, this is based on IEC6183 documents on latency and jitter.*
- 6.4.3. Recess at 9:58**
- 6.4.4. The meeting is called to order at 10:40 by Duncan Kitchin**

## **6.5. Comment Resolution**

- 6.5.1. Comment 1691**
- 6.5.1.1.1. *“The definition of the channel utilization does not measure the interference from other non-802.11 devices that may be sharing the channel such as cordless phones or Bluetooth modules.”*
  - 6.5.1.1.2. *Remedy – “Modify the definition of the channel utilization to capture the “effective” utilization of the channel taking into account 802.11 devices and interferers.”*
  - 6.5.1.2. **Discussion**
    - 6.5.1.2.1. *The best we can do is using the medium busy from the PHY. Not all PHYs provide the same information.*
    - 6.5.1.2.2. *Need to say both Virtual Carrier sense and CCA.*
    - 6.5.1.2.3. *Feels that the CCA is a better indication. Virtual Carrier sense might not indicate the real utilization of the channel.*
    - 6.5.1.2.4. *Virtual Carrier Sense includes the PHY busy time plus reserved time. The channel would be busy longer with VCS.*
    - 6.5.1.2.5. *How much work is it to write the text? Not too hard. Will take this off-line and come back with text.*
- 6.5.2. Comment 1692**
- 6.5.2.1.1. *“After sending a frame with a group address, the HC is required to wait for PIFS and sense the channel before continuing. This may not make sense if there are no hidden stations.”*
  - 6.5.2.1.2. *Remedy: “Change “HC shall wait for one PIFS period, and shall only continue to transmit if CCA is idle”*

to "HC may wait for one PIFS period, and may discontinue to transmit if CCA is busy"

6.5.2.2. Discussion

6.5.2.2.1. What is the difference? Change a shall to a may.

6.5.2.2.2. The intention is to allow the HC to detect a collision with the broadcast frame. SIFS isn't enough to detect activity. This is for a reason. Suggests declining.

6.5.2.2.3. Suggestion to change it to SIFS. How does that address the commenter?

6.5.2.3. Straw Poll

6.5.2.3.1. Who wants to decline this comment? 15

6.5.2.3.2. Who does not want to decline the comment? 0

6.5.2.3.3. Who doesn't care? 6

6.5.2.4. Discussion

6.5.2.4.1. This is only regarding the group address frames (unacknowledged)

6.5.2.5. Comment is declined without objection

**6.5.3. Comment 1543**

6.5.3.1.1. "The QoS operation should be consistent with the PCF operation. Specifically when ending the contention free period."

6.5.3.1.2. Remedy: "A QoS CF End frame should be used in a similar manner to the way the CF End frame is used in the PCF operation."

6.5.3.2. Discussion

6.5.3.2.1. Decline – there is no QoS CF End. The use of CF-end is already consistent

6.5.3.2.2. What is meant is that during PCF the polling ends with CF-end.

6.5.3.2.3. Suggestion to add a QoS CF End frame.

6.5.3.2.4. There are two different ends because the CF-end is only used for the CFP. The QoS Poll is used because the CFEnd doesn't have a BSSID. It needs to be distinguished in an overlapping case.

6.5.3.2.5. If we want to accept the remedy, we have to write normative text

6.5.3.2.6. The CF-end does have a BSSID..

6.5.3.3. Vote for the comment resolution options.

6.5.3.3.1. Those in favor of declining the comment: 23

6.5.3.3.2. Those in favor of accepting the commenter's remedy: 1

6.5.3.3.3. Abstains: 3

6.5.3.4. The comment is declined

**6.5.4. Comment 1544**

6.5.4.1.1. "I do not see much use of Tclass element."

6.5.4.1.2. Remedy "I recommend to remove Tclass from the draft."

- 6.5.4.2. *Discussion*
  - 6.5.4.2.1. *This has been discussed at length. We decided to keep TClass.*
  - 6.5.4.3. *Comment declined without objection.*
- 6.5.5. **Comment 1694**
  - 6.5.5.1.1. *“The text defines that TXOP limit = 0 implies the use of TxOPs without a specified temporal extent. In this case how should the duration field be computed? Also, what happens if the value of the eDCF TXOP MIB variable is set to 0? Finally, if the TxOP l”*
  - 6.5.5.1.2. *Remedy “Do not allow the TxOP value to be 0 in a polled TxOP.”*
  - 6.5.5.2. *Discussion*
    - 6.5.5.2.1. *This is not the correct solution. The solution is to insure the MIB is not set to an unreasonable value.*
    - 6.5.5.2.2. *It is currently specified that if TXOPlimit is set to 0 you can send one MPDU. The duration is then according to 802.11-1999*
    - 6.5.5.2.3. *The duration of the poll is not currently specified in this particular case*
    - 6.5.5.2.4. *The duration should be set to cover a maximum length packet*
    - 6.5.5.2.5. *The duration should be small, to protect only the CTS. Let the sender send the CTS to itself to protect the frame.*
    - 6.5.5.2.6. *Currently, the text says that the station receiving a poll should obey the rules of EDCF.*
    - 6.5.5.2.7. *Is there a difference in behavior if the MIB variable is set to 0? Is it still sending one MPDU? Yes.*
  - 6.5.5.3. *Proposed Remedy: Decline with clarification: A value of zero in the poll means that the TXOP size is constrained to the time limit set for EDCF. If the MIB variable for EDCF TXOP limit is set to zero it is only permitted to send one frame. The duration is then calculated as per 802.11-1999.*
  - 6.5.5.4. *Straw Poll:*
    - 6.5.5.4.1. *Disallow TXOP limit of zero in poll during CP, and specify duration field in such polls during CFP be set to 32768: 10*
    - 6.5.5.4.2. *Specify duration in a poll with the TXOP limit of zero as being one slot time: 9*
    - 6.5.5.4.3. *Abstain. 16*
    - 6.5.5.4.4.
  - 6.5.5.5. *Suggest that we decline, based on the lack of agreement*
  - 6.5.5.6. *Straw Poll – if this was the option, would you vote in favor ?*
    - 6.5.5.6.1. *Disallow TXOP limit of zero in poll during CP, and specify duration field in such polls during CFP be set to 32768: 19*

6.5.5.6.2. *Specify duration in a poll with the TXOP limit of zero as being one slot time: 12*

6.5.5.6.3. *Abstain. 5*

6.5.5.7. *This is adequate support. Text will be brought back later for a vote to adopt.*

**6.5.6. Comment 1695**

6.5.6.1.1. *“A queue size value of 255 is used to indicate a unspecified or unknown size. There is no similar encoding for a unspecified TXOP duration.”*

6.5.6.1.2. *Remedy: “Add text to define the encoding for a unspecified TxOP duration.”*

6.5.6.2. *Discussion*

6.5.6.2.1. *Why do we need an unspecified TXOP duration? Currently the TXOP duration of zero falls back to EDCF rules. Zero is the unspecified encoding.*

6.5.6.3. *Decline – there is no requirement to have an unspecified TXOP duration.*

6.5.6.4. *Disposition accepted without objection.*

**6.5.7. Comment 701**

6.5.7.1.1. *“It is widely known that the current MAC FEC scheme is broken when it is used on top of an OFDM PHY, i.e., 11a and 11g. While I am strongly in favor of the MAC FEC scheme, I like to see the group fixing the problem so that the MAC FEC can be really useful.”*

6.5.7.1.2. *remedy “The scrambler initiation problem can be fixed by adding 2 to 4 zero bytes in the MAC layer. These bits can be used to determine the scrambling sequence in the MAC and correct any error made in the PHY layer descrambler. More detailed solution will be subm”*

6.5.7.2. *Discussion*

6.5.7.2.1. *802.11g is working on this. We haven't made a decision on this.*

6.5.7.2.2. *Should we check with 802.11g to see what they are doing?*

6.5.7.2.3. *We were expecting a combined proposal that would be able to be accepted.*

6.5.7.2.4. *We should skip this and bring it up at a future meeting?*

6.5.7.2.5. *No objection to skip*

**6.5.8. Comment 702**

6.5.8.1. *CC/RR*

6.5.8.2. *We have already voted on this remedy and it failed.*

6.5.8.3. *Discussion*

6.5.8.4. *We should decline*

6.5.8.5. *Would anyone be willing to vote to reconsider?*

- 6.5.8.6. *There may be other compromises that might encourage a reconsideration. We should defer until these have been submitted – probably at the next session.*
- 6.5.8.7. *We should table such motions to a specific time.*
- 6.5.8.8. *There was a compromise solution presented yesterday.*
- 6.5.8.9. *Decline or Defer?*
- 6.5.8.10. *Vote on disposition*
  - 6.5.8.10.1. *Decline right now: 11*
  - 6.5.8.10.2. *Defer to further discussion: 14*
  - 6.5.8.10.3. *Abstain: 11*
- 6.5.8.11. *Defer until later*
- 6.5.8.12. *The chair appeals to the group to not abstain.*

### **6.5.9. Comment 797**

- 6.5.9.1.1. *“MLME-ADDTS.request should not be limited to be initiated by WSTA only. In the current draft, how can we initiate TSPEC signaling for the case where HC is the source for multicast stream.”*
- 6.5.9.1.2. *Remedy: “In the case where HC is source for a TSPEC stream, it should be able to initiate TSPEC signaling.”*
- 6.5.9.2. *Discussion*
  - 6.5.9.2.1. *The HC has to initiate a TS modification. It is done with TS addition.*
  - 6.5.9.2.2. *We had straw polls on proposals to amend TSpecs. Who was leading the ad-hoc? John. We were merging three proposals.*
  - 6.5.9.2.3. *The commenter does not have a solution. The TSpec cannot be used by the HC for a multicast downlink.*
  - 6.5.9.2.4. *The Ad Hoc was solving a different problem.*
  - 6.5.9.2.5. *There was no announcement of the meeting of the ad-hoc.*
  - 6.5.9.2.6. *It is noted that the Ad Hoc group was not announced regarding how members can join the ad-hoc group. It is felt that the ad hoc group was private.*
  - 6.5.9.2.7. *It was stated that John was the leader of the Ad Hoc. The work that has been done was in a similar manner.*

## **6.6. Recess at 12:00**

## **6.7. Opening**

### **6.7.1. Call to order at 3:30PM by John Fakatselis**

### **6.7.2. Discussion**

- 6.7.2.1. *We can make some progress if we focus on the PICS*
- 6.7.2.2. *The chair moves to Duncan Kitchin*

## 6.8. The PICS

### 6.8.1. Discussion

- 6.8.1.1. *We have many comments that there is no PICS. The PICS is required. It is a formal statement of what is required and what is optional.*
- 6.8.1.2. *We propose forming an Ad Hoc group to write the PICS and have them meet right now.*
- 6.8.1.3. *No objections*
- 6.8.1.4. *Volunteer to lead the Ad Hoc Group to write the PICS.*
- 6.8.1.5. *Matthew Sherman will lead the Ad Hoc group*
- 6.8.1.6. *We would like to have an outline of the PICS for our evening session.*

## 6.9. Recess at 3:36 for the PICS ad hoc

# 7. Thursday Evening, July 11, 2002

## 7.1. Opening

7.1.1. **The meeting is called to order at 7:15PM by John Fakatselis**

### 7.1.2. Review of the agenda

- 7.1.2.1. *How many motions are there for this session?*
  - 7.1.2.1.1. *One from Keith*
  - 7.1.2.1.2. *One from John K*
  - 7.1.2.1.3. *One from Sunghyun (tabled motion)*

## 7.2. Report from PICS ad hoc

- 7.2.1.1. *A document has been prepared, but it is 40% complete. It will need another 2-3 hours of work.*

## 7.3. Motions

### 7.3.1. Load Element

- 7.3.1.1. *Document 02/482r0*
- 7.3.1.2. *This is the follow-up text to the presentation on the QBSS Load Element.*
- 7.3.1.3. *Move to adopt the editing instructions described in document 11-02-482r0.*
  - 7.3.1.3.1. *Moved Amman*
  - 7.3.1.3.2. *Second Kandalas*
  - 7.3.1.3.3. *Discussion*
    - 7.3.1.3.3.1. *Is there any clause 9 text? No it's all in clause 7.*
    - 7.3.1.3.3.2. *Is it required for the AP to transmit this? It is included in the beacon frame format – so*

yes, it is mandatory. There are many fields that are not called out in clause 9.

7.3.1.3.4. *Vote on the motion: Passes 23:0:2*

### 7.3.2. MAC Architecture

7.3.2.1. *Document 02/439r0*

7.3.2.2. *Updating figure 49 and 47 in the MAC architecture.*

7.3.2.3. *Added MAC control plane architecture (fig 47.1)*

7.3.2.4. *Discussion*

7.3.2.4.1. *In the ordering of encryption and fragmentation – does this match the current state of TGi? They are still on MSDUs. OCB is still MSDU. So this is still mixed at this point.*

7.3.2.4.2. *Why is EDCF a bad name if DCF is a coordination function? HCF is the one coordination function, which has two types of access. But there are some who think EDCF is separate from HCF when it is really part.*

7.3.2.4.3. *Why not get rid of coordination function everywhere since these are all access mechanisms? The PAR limits our scope. We are not really empowered to change the terminology of the whole standard.*

7.3.2.4.4. *Figure 47 only shows Polled TXOP access. There are HCF contention based and HCF controlled access. The names should be changed to match these.*

7.3.2.4.5. *Needs more explanation for fig 47.1. There is CF delivery, CF Poll, and TXOPS.*

7.3.2.5. *Motion: Instruct the editor to incorporate 02/439r0 into the next TGe draft.*

7.3.2.5.1. *Moved Kitchin*

7.3.2.5.2. *Second Williams*

7.3.2.5.3. *Discussion*

7.3.2.5.3.1. *This document is totally editorial.*

7.3.2.5.3.2. *Changes – change EDCF to HCF Contention Based Channel Access, change Polled TXOP to HCF Controlled Access. These are editorial changes.*

7.3.2.5.3.3. *There was a presentation of 464r0 regarding interactions with TGi. There is an issue with the sequence control field. Yes – the sequence control field is now protected by the integrity check. It must be up the stack.*

7.3.2.5.4. *Vote : Passes 37:1:0*

### 7.3.3. Priority Mapping

7.3.3.1. *Motion to instruct the editor to make the following changes: Change 6.1.1.1 as follows: delete the words “(highest)” and “(lowest)””; add the footnote: “Using the mapping between user priorities and traffic types, found in 802.1D Annex H.2, above the MAC SAP is recommended””; Remove the traffic type names in Table D.1*

- 7.3.3.1.1. *Moved Choi*
- 7.3.3.1.2. *Second Kitchin*
- 7.3.3.1.3. *Discussion*
  - 7.3.3.1.3.1. This means that the user priority values above the MAC sap are carried as the TID field on the air.
  - 7.3.3.1.3.2. When an AP gets a priority from the Ethernet, it can plug this same priority into the QoS control field? Exactly.
  - 7.3.3.1.3.3. Suggest there should be a direct mapping from UP to Access Category.
  - 7.3.3.1.3.4. There is some implied ordering in the use of priority. An access category containing multiple UP uses the parameters of the lowest UP.
  - 7.3.3.1.3.5. Doesn't agree – the Access Category is different than a queue. If there is a single Queue, it could have several access categories mapped, and the lowest UP maps to the lowest access category.
  - 7.3.3.1.3.6. Call the question (Adrian/John) No Objection
- 7.3.3.1.4. *Vote: 40:0:1*

#### 7.3.4. TSPECS

- 7.3.4.1. *Document 483r0a*
  - 7.3.4.1.1. *Merger of concepts in documents 406r0, 383r0, and 409r2.*
  - 7.3.4.1.2. *Adds concept of observable, testable TSPEC with ability to infer TSPEC violations ("Isochronous TSPEC")*
  - 7.3.4.1.3. *Adds AWMA concept ("Scheduled TSPEC")*
  - 7.3.4.1.4. *Adds additional Polling Start Time to TSPEC & clarified definitions.*
- 7.3.4.2. *Move to instruct the editor to make changes to the draft based on 406r3*
  - 7.3.4.2.1. *Moved Kowalski*
  - 7.3.4.2.2. *Second Stephens*
  - 7.3.4.2.3. *Discussion*
    - 7.3.4.2.3.1. TSpec is currently very confusing in the draft. This is a significant change.
    - 7.3.4.2.3.2. Coexistence is outside our PAR. It's a good thing, but it might generate more no-votes.
    - 7.3.4.2.3.3. The definitions of the TSPEC parameters have been made much cleaner. We have sponsor ballot voters from 802.15 that will look for coexistence. So leaving out support might generate No-votes. The notion has promise with respect to OBSS. This shares a lot with TSPEC and doesn't add much.
    - 7.3.4.2.3.4. Coexistence is important for all wireless groups. Interference does relate to QoS,



so this is part of our scope. It will be an iterative process to refine the TSPECs.

7.3.4.2.3.5. The chair of 802.15.2 notes that 802.15.2 recommendations needed to be done in 802.11 groups. This is what we're doing here. It is appropriate.

7.3.4.2.3.6. In favor of the AWMA support. It is a MAC enhancement.

7.3.4.2.3.7. The TSPEC includes an TBTT offset. It isn't clear if it is set by the station or the HC? The HC. Is it specified? The station can request a value, the HC must specify a value. The station would not have a parameter present. The HC responds with the information

7.3.4.2.3.8. Call the question (Adrian / Srinu)

7.3.4.2.3.8.1. Vote on calling the question:  
Passes 27:6:9

7.3.4.2.4. *Vote on the motion: Fails 26:12:5*

### 7.3.5. TS Signaling with Roaming

7.3.5.1. *Document 407r1*

7.3.5.2. *Motion: To instruct the editor to incorporate the editing changes made in 7.3.2.18 in document 02/407r1 into the next TGe draft.*

7.3.5.2.1. *Moved Jin Meng*

7.3.5.2.2. *Second Schrum*

7.3.5.2.3. *Discussion*

7.3.5.2.3.1. In favor – it clarifies the existing draft

7.3.5.2.3.2. It is editorial changes. It converts text into figures.

7.3.5.2.3.3. Is there any technical change?  
There were 5 classifiers, now there are 4. One was redundant. This is a technical change, thus making this motion.

7.3.5.2.3.4. Is there a reason to specify the field in 42.16.2? They are outside our scope? They are already in the draft, just in text form.

7.3.5.2.3.5. Do we want to expose TCP at the MAC layer? They were already there.

7.3.5.2.3.6. This is a good effort to make the TCLAS element more clear through a picture.  
Supports the motion.

7.3.5.2.3.7. Call the question (Harry / Srinu) no objection

7.3.5.2.4. *Vote on the motion: 18:1:18*

### 7.3.6. Primitives for Burst Ack

7.3.6.1. *Document 436r0*

7.3.6.2. *Discussion*

7.3.6.2.1. *This signaling could use the same signaling as TSPEC, why introduce another one?*

- 7.3.6.2.2. *How would an upper layer know when to use this? Feels this is cleaner.*
- 7.3.6.2.3. *Against this – Not sure about the connection between TSPEC and BurstAck. Is there an assumption that BurstAck are always used with TSPECs = they are always set up. Burst acks will be needed in higher rate PHYs. Want the MAC to be able to handle Burst ACK just like association. Shouldn't require these primitives.*
- 7.3.6.2.4. *The primitives are not required. The MAC can set it up also – like an association request.*
- 7.3.6.3. *Motion: Instruct the editor to incorporate 436r0 into the next version of the TGe draft*
  - 7.3.6.3.1. *Moved Srin*
  - 7.3.6.3.2. *Second Sunghyun*
  - 7.3.6.3.3. *Discussion*
    - 7.3.6.3.3.1. *None*
  - 7.3.6.3.4. *Vote: Passes 16:3:20*

#### **7.4. (10 minute recess to review motions)**

##### **7.4.1. Motions on the draft**

- 7.4.1.1. *Motion: Instruct the editor to create version 3.2 of the 802.11e draft which includes the changes to the draft as decided with the related motions passed by TGe and reflected in the minutes of TGe, document 443r0.*
  - 7.4.1.1.1. *Moved Srin K*
  - 7.4.1.1.2. *Second Harry Worstell*
  - 7.4.1.1.3. *Passes 34:0:1*
- 7.4.1.2. *There is no motion to send the draft out to letter ballot*

##### **7.4.2. Presentation of Papers**

- 7.4.2.1. *Document 465r1 "DLP Protocol"*
- 7.4.2.2. *Direct Link Protocol*
- 7.4.2.3. *Signaling protocol to establish direct station to station links.*
- 7.4.2.4. *Discussion*
  - 7.4.2.4.1. *What's going to be in the request and response frames? Supported rates? The format of the frame body is DA, SA, capability, rate, elements, etc.*
  - 7.4.2.4.2. *This replaces the WARP protocol*
  - 7.4.2.4.3. *Can management frame be encrypted? This is based on TGi having a future mechanism for this. This provides the hook if it is needed.*
- 7.4.2.5. *Straw Poll*
  - 7.4.2.5.1. *How many people think that this mechanism is the right direction to provide a protocol to replace WARP? 27 for, 0 against.*

**7.4.3. Announcements**

7.4.3.1. *We have incomplete figures on frame exchange sequences. We need help to enhance them further. It would help those who don't attend to understand. Document 440r0.*

**7.5. Adjourn at 9:30PM**

**IEEE P802.11  
Wireless LANs**

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**Minutes of TGf for July 2002 Session**

**Date:** July 11, 2002

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**Abstract**

Minutes for TGf Plenary Meeting Vancouver July 8, 2002.

Meeting Called to order 8:08 am.  
Review proposed Agenda  
All was asked to turn off pagers and cell phones.

Moved to adopt agenda: Bob M. 2<sup>nd</sup> Stuart K. vote: Unam

Matters from minutes April Meeting: None

Moved to accept the minutes from April Interim Meeting: Stuart K, 2<sup>nd</sup> Butch A. Vote: Unam  
Review Goals for this meeting:

Since LB 38 passed. We are preparing to send to sponsor ballot.  
Sponsor ballot starts from July Plenary  
Sponsor ballot review/resolution in Sept. Meeting

Ballot 32 and 39 passed at 79%

Overall, there were no significant changes between Letter Ballots.

We had 103 unresolved no comments  
LB38: got 9 new comments for 112 no comments  
11 editorial  
20 duplicate cut and paste comments  
91 comments unique.

A list of commenters were presented.

5 of the commenters failed to respond although their comments have all been resolved.  
Bob M. in the meeting acknowledges his name, and asked to change to OK.

The approval rules are stated as a percentage, and we need to pass at 75% to move on to sponsor ballot.

When 802.11 passed the first time, there were about 60 voting members. This is quite different from where we are now. We had some unresolved comments then, and as you look at the percentage, we are at 11% no vote that is similar to what we had for the original standard. While we would like to have no outstanding comments, we are not getting responses from those with outstanding comments.

Now going forward, the chair must send the draft to Sponsor Ballot as it has passed twice, and that is the rules that we operate under.

Comments groups:

Object to Radius: 14  
Remove Security/IPSEC: 4  
Wait until TGI is done: 6  
The rest are comments where TGf disagrees with review comment and declined the change.

Stuart Kerry, Chair of 802.11, was then invited to provide instructions on how to proceed to sponsor Ballot.

Reading from procedure 10 of the LMSC rules.

We were informed that we needed to request 3 times from the no voters to change their votes.

The new comments do not require text change, so we must get the comments and drafts to SEC by 5 Tuesday, and they have to respond to TGf by 5 Wed. If it comes in after TGf is to ignore it. If the comments are valid, then we need to resolve/respond to the comments Thursday, and then SEC will then determine whether the draft can proceed on Friday.

While the rules say that 75%, the unwritten rules has been over 90% by tradition.

An invite to all present to join IEEE SA and sign up for the Sponsor Pool.

The Sponsor Pool was explained by Stuart.

The timeline was then reviewed.

The document to the SEC is usually given hardcopy, but the current thought was to give a page to the SEC's mailbox that has a coversheet with the information from the Chair's slides, and a page that gives a reference to where to locate the draft. The Chair will provide the Meeting slides as the information page.

Review of the Time slots showed that we would probably not need the time slots for Wednesday.

Call for questions and/or comments resulted in none.

Processing of Comments:

Reviewed new comments.

Color coding was to be removed prior to sending to SEC.

Comment #478: the comment may be correct, and to resolve it, would require a new recirc LB. If this was the only comment, the new path would be a 10 day recirc, followed by a sponsor ballot. The decision was to wait and come back to this comment later to identify if this was the only comment that would cause a recirc ballot.

Comment #459: The comment was that the previous comment was not resolved to satisfaction. The commenter was asked to respond to what is missing, or what could have been added to resolve his concern. The commenter asked for more text and for analysis for how the new and old AP are able to recognize their access. As a group, we cannot tell the amount of analysis or text that the commenter would be satisfied, and as such we don't see how we can start analyzing and writing until the commenter feels there is enough. No volunteers to write an unknown amount of text, and as such the group agreed to leave the resolution from the original comment.

Vote: unanimous to reaffirm the position from before.

Comment #488: this comment is requesting a new level of support. There was a comment that the group had looked at the reverse ARP, but it doesn't appear to work well. The inverse ARP would only work if the IP address is the same for the Wireless and the DS side of the AP. So as this is not guaranteed, this is not likely to be true. What he is asking for is not possible without adding an over the air protocol, which we cannot do. The Inverse ARP from the AP should result in the same IP address for both sides unless it was acting as a router. The old AP would not be able to listen for the Wireless MAC address on the DS side acting like a proxy for the wireless side on the DS side. As the AP could/would have different MAC addresses on each side, and given the bridge standards, the packet should traverse correctly if the AP was listening on both sides for both MAC addresses. The question was raised to whether the comment was on new changes or new change requested. The group discussed whether it was possible or feasible.

If we continue and will revisit this comment later.

Comment # 461: commenter would like to remove IPSEC, or provide more detail on how to use IPSEC and to identify how it interacts with TG<sub>i</sub>. The group had responded that they believe that there is enough text already, and as TG<sub>i</sub> is not complete, and as it only is standardizing the STA to AP communications, and not AP to AP communications. The TG<sub>i</sub> is working on level 2 communications. There is no direct relation in TG<sub>i</sub> and TG<sub>f</sub>. As TG<sub>i</sub> and TG<sub>f</sub> are working on two different links and doing different things. Even if TG<sub>i</sub> wants to use TG<sub>f</sub> to pass fast handoff information. Commenter agreed to allow this comment to be resolved for the TG<sub>i</sub> part, but the portion on IPSEC is still an issue for him. The commenter is thinking that there hasn't been sufficient analysis on the passing of secure information from a 3<sup>rd</sup> party to the new AP about the old AP. The commenter is really asking for more tutorial detail rather than asking for more technical recommended practice. Some rationale was explained for why we are using IPSEC to protect the Adds.

Disposition:

Comment declined: The detail requiring the use of IPSEC is proved in the Relevant RFCs.

RE: TG<sub>i</sub>, there is no direct relationship..... and the commenter is satisfied.

TG<sub>f</sub> still believes there is enough text for detail for IPSEC.

Moved to accept the Disposition of comment as stated on the screen:

Moved: Jon R. 2<sup>nd</sup> Kevin Smart.

Vote: unanimously (no objection)

Comment # 479: Similar to 478, and we will come back to later.

Comment #477: After the reading of the comment, it was pointed out that it doesn't meet the criteria for a recirc comment. Further the TG is isn't a predictive protocol, nor is TGF supposed to be. The comment is outside the scope of TGF.

Disposition: TGF is non predictive association mechanism. It is designed to support 802.11 reassociation. The request functionally is not part of the TGF Functional requirements. Further, the requested functionality is not a comment on changes from the draft 3.0 to 3.1, but a request for something new – therefore, the comment is an invalid Recirc comment and is declined.

Moved to invalidate the comment with the response given on the screen: Jon R. 2<sup>nd</sup> Butch A.  
Vote: unanimously (no objection)

The comment was removed from those being passed on the the sponsor ballot.

Comment # 482 and 484: Comments are copies of each other. Radius is a protocol between a client and a server, and not between a user. These comments are editorial in nature and don't request a technical change.

Disposition: Radius does not run between "users". The closest thing to a "user" would be the AP. The requested clarification can not be made because the premise is incorrect. The comment is not sufficiently detailed to enable the TG to know how to satisfy the commenter. The change is therefore declined.

Moved to accept the disposition: Butch A. 2<sup>nd</sup> Jon R.

Disposition was modified by consensus as follows:

Disposition: The draft clearly describes the AP as the user, and further clarification is not necessary. The comment is not sufficiently detailed to enable the TG to know how to satisfy the commenter. The change is therefore declined.

Vote: Unanimous approved. (no objection)

Recess until 10:30am at 10:05am.

Called to order 10:35 am.

Comment 483 and 481: duplicate comments. Request to have TGF to work with IETF. The fact is that RFC 2865 specifies that new attributes can be requested from IANA, and no standards action is required. The

Disposition: The requested change is not a request for change of the draft and therefore is not a proper recirculation comment. No action taken as no change requested to the draft and no other action within the industry is needed.

Moved: Butch a. 2<sup>nd</sup> Richard P.

Vote: Unanimous

Comment 480: no discussion after reading the comment.

Disposition: The TGF draft is a recommended practice. It is necessary for TGF to recommend a practice and it is necessary to recommend a practice and TGF has choose to recommend radius usage. Other protocols are not recommended and TGF does not want to recommend multiple conflicting practices. Request declined.

Motion: Butch A. 2<sup>nd</sup> Bob M. Vote: Unanimous

There are now 3 comments to return and discuss. 2 from Frank C. (478 & 479) and 1 from Arnoud Z (488). Frank has requested to have his comments removed from current consideration and will resubmit the comments during the Sponsor Ballot.

Thus with the last comment, we need to decide if we need to make a change now, or can we have the comment be considered during the Sponsor Ballot time, and we end up with the same result, but we will have a simple way to move forward to achieve the fastest success.

So the group now needs to return and discuss comment #488.

Comment #488: Not everyone implements inverse ARP, so the new level requested is not really a common service that could be depended on.

Disposition: Group declines to add this new functionality. The support for Invers-ARP that would be required is not common. The request for new functionality is not strictly a subject for a recirc comment.

John V. 2<sup>nd</sup> Justin M.

Vote: unanimous

Now we need to get some document numbers and post them to the server for prep to send to sponsor ballot.

Comments that were withdrawn or resolved were removed from the file to send to SEC.

AS each comment disposition was done by motion, a motion to adopt all is not needed.

Bob M. has changed his vote from No to Yes.

Administrative tasks that the Chair needs to accomplish were left to him.

Recessed until 1 pm Wed. at 11:08am.

Meeting was not formally called to order, but notice of meeting change was posted, and the group targeted to start again on Thursday.

Called to order Thursday 8:03 am

No comment has come from the 802 EC at this point. So we have no response to give them.

Reviewed 802.11f Meeting Report.

Doc to Sponsor Ballot will be 4.0 which is 3.1 w/o change bars.

Sponsor Ballot slated to start and end prior to Sept.

Plan to respond to Comments in Sept.

Review Comment Summary

All Late Ballots were rejected without prejudice.

Moved to adjourn Bob M. 2<sup>nd</sup> Richard P unanimous



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**IEEE P802.11**  
**Wireless LANs**

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**July 2002 Vancouver Plenary TGg Meeting Minutes**

**Date:** July 8-12, 2002

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**Abstract****Minutes**

The outline numbers are based on the approved agenda that was in Doc. 11-02-398r1.

**Monday, July 8, 2002      3:30 PM – 9:30 PM**

- 0. 802.11g Session Called to Order  
**The meeting was called to order at 3:35 PM**
- 1. Chairs' Status Update and Review of Objectives for the Session
  - 1.1. There was a presentation, but the document did not yet have a number.
  - 1.2. History of TGg was given
  - 1.3. Document 11-02-209rX (currently 11-02-209r10) has the current comment resolutions
  - 1.4. Strategy for this meeting was presented
    - 1.4.1. Complete comment resolutions
    - 1.4.2. Enable the next draft
    - 1.4.3. Have a new letter ballot issued
    - 1.4.4. Joint meetings
      - 1.4.4.1. Joint Radio Regulatory Meeting (802.18 Joint Meeting)
      - 1.4.4.2. TGe Joint Meeting (optional, we will decide later)
- 2. Review IEEE 802 and 802.11 Policies and Rules
  - 2.1.1. Refrain from using logos or copyright information on submissions
  - 2.1.2. Submissions need to use the templates
  - 2.1.3. Get document numbers from Harry Worstell or Pluto (when available)
  - 2.1.4. SSID for network is IEEE
- 3. Approve or Modify Agenda (Doc. 11-02-398r1)  
The r1 modification from r0 included the document numbers for the minutes  
Motion: Move to adopt the agenda as shown in Document 11-02-398r1.  
Moved: Dave Richas  
Seconded: Carl Andren  
Vote: 41/0/0 motion passes  
**Agenda is 02/398r1**
- 4. Review and Approve Minutes
  - 4.1. Sydney, Australia (Doc. 11-02-323r1)  
Motion: Move to adopt minutes from Sydney Interim meeting as shown in Document 11-02-323r1.  
Moved: Carl Andren  
Seconded: Jan Boer  
Vote: adopted by unanimous consent

**Minutes are approved**

- 4.2. Channelization and RF Issues Conference Call (Doc. 11-02-403r0)
- 4.3. MAC Issues Conference Calls (Docs. 11-02-404r0 and 11-02-422r0)  
 Motion: Move to adopt minutes from conference calls in Documents 11-02-403r0, 11-02-404r0, and 11-02-422r0.  
 Moved: Craig Conklang  
 Seconded: Marcus Gallard  
 Vote: Adopted by unanimous consent

**Minutes are approved**

5. Call for Submissions
  - 5.1. Related to unresolved comments (Agenda Item 6)  
 Document 11-02-433 "Short Slot Time Proposal" from Richard Van Nee (comment 12)
  - 5.2. Unrelated to comments, but other submissions or issues (Agenda Item 8)  
 Document 11-02-420 from Rishi  
 Document 11-02-445 on "CCA and Slot Time Relations" from Jan Boer
6. Presentation of Recommendations from the Resolution Groups and Presentation of Submissions
  - 6.1. Sean Coffey, "Clause 19.5 and 19.6" Comment resolution
    - 6.1.1. Comment Numbers 10-12 Minimum Input Sensitivity Requirements for optional modes. We agreed that we should provide these numbers.
      - 6.1.1.1. PBCC-22 should be the same as for CCK-11
      - 6.1.1.2. PBCC-33 should be the same +2 dB.
      - 6.1.1.3. There is no presentation for the origin of those numbers
    - 6.1.2. Comment 30 The commentor considers it resolved with the new drafts (editorial issues)
    - 6.1.3. Comments 26, 27, 29 are considered editorial and have been fixed in the same manner as 30.
    - 6.1.4. Comment 28 is considered editorial  
 Editor's comment: The first clause has been fixed. The second part considers test things, the editor considers it consistent.
    - 6.1.5. Comment 31 is considered a MAC issue by the special committee. The resolution was adopted by unanimous consent.
    - 6.1.6. Comment 32-34 is considered editorial. The editor fixed these issues. This was adopted by unanimous consent.
    - 6.1.7. Comment 35. The special committee (SC) has recommended a resolution. It was adopted by unanimous consent and incorporated into the draft.
    - 6.1.8. Comment 36 same as 34.
    - 6.1.9. Comment 37 the SC recommended accepting the comment and resolve as suggested. Adopted by unanimous consent.
    - 6.1.10. Comment 38 is considered editorial. Things look consistent in the new draft. Editorial change adopted by unanimous consent.
    - 6.1.11. Comment 39 is considered editorial. The problematic sentence was removed. The task group adopted the proposed solution of the SC by unanimous consent.
    - 6.1.12. Comments 40-43, 46-47 were referred to the MAC SC. This was taken care of by the editor as an editorial change. This was adopted by unanimous consent.
    - 6.1.13. Comment 44 The editor states that this is consistent. It has been taken care of and settled. The SC suggestion was adopted by unanimous consent.
    - 6.1.14. Comment 45 The comment was considered editorial. Do we want to merge all of the tables?  
 There are two tables, but they have different locations. These are not in conflict. It seems to make more sense to keep the tables in the appropriate section. The editor believes we have addressed his comment, but we need to put all of the MIBs in a single table. We agreed to keep the document as-is. Adopted by unanimous consent.
    - 6.1.15. Comment 48. This is to be fixed as an editorial comment. This was adopted by unanimous consent (UC).
    - 6.1.16. Comment 49. This is handled the same as .11b. The TG says that we are consistent with Clause 18 unless otherwise stated. No further action is recommended. This was adopted by unanimous consent.
    - 6.1.17. Comment 50 handled as editorial. Fixed by the editor. This was adopted by UC.
    - 6.1.18. Comment 51. Fixed by UC.
    - 6.1.19. Comment 52, 57. The proposed resolution is already in the draft. The editor wonders if the commentor wants an explicit statement about an extra byte. This has always been there. It was

- likely mis-read. Reference clause 19.5.2.3 does what the commentor is asking for. Adopted the resolution of SC. Done by UC.
- 6.1.20. Comment 53, 55-56. Clarified in Draft 2.8. The proposed changes were adopted by UC.
  - 6.1.21. Comment 54, 58. Converted to editorial. Fixed by UC.
  - 6.1.22. Comment 59 converted to editorial. Fixed by UC.
  - 6.1.23. Comment 60 the reference was incorrect. The corrected refence was added. Done by UC.
  - 6.1.24. Comment 61 a lot of new details regarding this section have been forwarded to the editor and incorporated in the draft. Adopted by UC.
  - 6.1.25. Comment 62. Should we specify the pulse shape way we are using? In .11b we didn't specify the pulse shape. The introductory paragraph regarding pulse shaping should be specified. Jeyhan: Before we didn't need as much SNR, so we didn't need to specify the shape. The pulse shape can be defined to gain back some SNR. Chair: Without specifying the pulse shape we have some flexibility with different regulatory requirements. SC chair: read the recommendation from the SC. Ivan: In the comment, is some solution given? It is not, so we don't have to consider this a true NO vote. Straw poll: Any mandatory pulse shaping requirement: 1, No mandatory pulse shape requirement: 32 The paragraph no longer refers to pulse shaping, so this should be more clear. The proposed resolution was adopted by UC.
  - 6.1.26. Comment 63. Similar to Comment 61. The commentor accepts the changes.
  - 6.1.27. Comment 64. Similar to Comment 61. Adopted by UC.
  - 6.1.28. Comment 65. Similar to Comment 61. Editor added a comment: "Same pulse shape shall be used for each clock domain." There is some discussion as to whether that is sufficient. There have been significant changes to the draft since that time. The proposed resolution was adopted by UC.
  - 6.1.29. Comment 66 the resolution was adopted by the commentor and by the group by UC.

**The session was recessed for dinner at 5:31 PM.**

**The session was called back to order at 7:12 PM.**

- 6.1.30. Comment 67 was changed to editorial so there are no references to 802.11b or 802.11a. The change was adopted by UC.
- 6.1.31. Comment 68 and 69. This is the similar to 61. Text has been added. The proposed resolution was adopted by UC.
- 6.1.32. Comment 70 is the same as 62.
- 6.1.33. Comment 71 is the same resolution as 61. Extra details were added. Adopted by UC.
- 6.1.34. Comment 72. The offending sentence was deleted. The resolution was adopted by the TG by UC.
- 6.1.35. Comment 73 is the same as 68. Done by UC.
- 6.1.36. Comment 74 the comment was correct. The contents of the resynch field were changed. Same resolution as 66. This was done by UC.
- 6.1.37. Comment 75 is the same as 59. Editorial change.
- 6.1.38. Comment 76. Extra details were added. Same as previous comments. Done by UC.
- 6.1.39. Comment 77. There is no reference to a transmit mask. The first SC recommendation using the clause 18 mask (leave as-is) was adopted. This was adopted by UC.
- 6.1.40. Comment 78. Section 19.6. Deemed MAC issue and referred to MAC SC. This is under non-clause 19. Resolved by MAC SC. Non-Clause 19 and Appendicies Tab Comment 118 addresses this. Resolved by UC.
- 6.1.41. Comments 79-86. Refer to General Tab Comment 11. There was not sufficient support to remove the options. This was adopted by UC.
- 6.1.42. Comment 80. Question: Does this mode truly add no value? Sean: It is a matter of opinion. Question: What is the value? Steve Halford: It provides a method of not requiring RTS/CTS. It provides flexibility. Comments 80-86 were resolved by UC in the same manner as Comment 79.
- 6.1.43. Comment 87. The SC's resolution was adopted.
- 6.1.44. Comment 88. Transmit mask portion is under consideration. The PA backoff is implementation dependent and shouldn't be included. Steve Halford presented a possible transmit mask (11-02-347). This is unresolved at the moment.
- 6.1.45. Comment 89, 91, and 92 is resolved by General Tab Comment 11. Done by UC.
- 6.1.46. Comment 90 is the same Comment 78. Identical, so refer to Comment 78.
- 6.1.47. Comment 93 the incorrect reference was corrected by the editor. Done by UC.
- 6.1.48. Comment 94 the incorrect reference was corrected by the editor. Done by UC.
- 6.1.49. Comment 95-97 are the same as 94. Done by UC.

- 6.1.50. Comment 98 same as comment 59.
- 6.1.51. Comment 99. We are recommending no changes to the draft based on this comment. The SC recommended the commentor to provide further detail to the entire group. Without this information, we are not making a change. Done by UC.
- 6.1.52. Comment 100 same as Comment 59.
- 6.1.53. Comment 101 proposed note was adopted by UC.
- 6.1.54. Comment 102, 107, 108, 111 is the same as 59. This is done by UC.
- 6.1.55. Comment 103-104. This was resolved as an editorial comment. The editor added these definitions. The definitions were adopted by UC.
- 6.1.56. Comment 105. The proposed resolution was adopted by the TG by UC.
- 6.1.57. Comment 106. The SC recommends no change. The TG adopted it by UC.
- 6.1.58. Comment 109. Pulse shaping requirements... This was changed in Draft 2.8. Adopted by UC.
- 6.1.59. Comment 110.... Similar to 109. Use same resolution as 109. Done by UC.
- 6.1.60. Comment 112. Add text to clarify the average power. Draft 2.8 has some clarifying text. Put aside for further discussion. Deferred.
- 6.1.61. Comment 113. Change text to informative. Appropriate text has been added. Done by UC.
- 6.1.62. Comment 114. Adopted by UC.
- 6.1.63. Comment 115. Adopted by UC
- 6.1.64. Comment 116 is the same as 114. Done by UC.
- 6.1.65. Comment 117. The change has been adopted by UC. Richard Williams: The figure title also needs to be changed. This was done by UC.
- 6.1.66. Comment 118-119. Comment was accepted. The units were included. Done by UC. Richard Williams: The units should be dBc so it is relative to something. This was corrected by UC.
- 6.1.67. Comment 120 rates have been added as in comment 40. The proposed resolution was adopted by the TG by UC.
- 6.1.68. Comment 121 (last one) extra details have been added. Adopted by UC.
- 6.1.69. Minimum Sensitivity numbers (Comments 10-13, 15-19, 22) should be -76 dBm for PBCC-22 and -74 dBm for PBCC-33. These numbers were provided by Anuj Batra. This resolution was adopted by UC.
- 6.1.70. Adjacent Channel Rejection.... For ACR the SC proposal was adopted. The proposed resolution was adopted by UC.
- 6.2. John Terry, "General" Comment Resolution
  - 6.2.1. Comments 15-18 were resolved by the suggestion from the SC. This was done by UC.
  - 6.2.2. Comment 25 What is the performance of 11a-type modulation with 25 MHz spacing. Steve Halford presented some data regarding the performance with this signal. Steve Halford doesn't see the relevance of the comment. In 11b, we don't specify any spacing, but the 25 MHz spacing is standard practice. 11-02-347r1 gives some of this performance. Steve: Do we need to address this? That is highly dependent on the system, so it isn't really necessarily part of the standard. The commentor is confused based on the 5 MHz spacing that is defined for the band. Dick Allen: 11b interferes with 11b. We didn't deal with it in 11b, so we shouldn't in 11g. We don't have to answer every question about performance. Dick's point was that we didn't answer this in 11b, so we don't have to answer it now. The commentor is recommending doing something that doesn't make sense. Tab "General" Row 25 is the recommended solution. We are not recommending 25. We are discouraging 5, 10, and 15 MHz channel spacing. The recommendation would be that the more spacing, the better. Carl Andren: See clause 18.4.6.2 to see how the 25 MHz spacing is recommended. We worked on the words for a while and resolved it by UC.
  - 6.2.3. Comments 15.. The motion failed in TGe.
  - 6.2.4. Comment 27 The state machine updated. The editor is instructed to solve this problem. The "pink" things are already done. The resolution was adopted by UC.
  - 6.2.5. Comment 28 is the same.
  - 6.2.6. Comment 33 has the same resolution as 15-18. Comment 34 is the same as the previous with the MAC state machine. This was adopted by UC.
  - 6.2.7. Comment 37. MIBs were adopted and State Machines were added. Adopted by UC.
  - 6.2.8. Comment 38. The editor has fleshed out the optional modes in 19.5 and 19.6. The resolution was adopted by UC.
  - 6.2.9. Comment 39. Same as 15-18. Adopted by UC.
  - 6.2.10. Comment 40. There is no verbage on mixed mode BSSes. This was referred to MAC SC. This is addressed in Annex E. Adopted by UC.
  - 6.2.11. Comment 44 is the same as 15-18. Done by UC.

- 6.2.12. Comment 45 is an identical repeat of 34. Adopted by UC.
- 6.2.13. Comment 46 repeat of 25. Identical. We copied the resolution. Done
- 6.2.14. Comment 48 is a repeat of 15-18. Adopted by UC.
- 6.2.15. Comment 54 This is addressed in 11-02-235r2. The proposed resolution was adopted by UC.
- 6.2.16. Comment 55 is a repeat of 15-18. Adopted by UC.
- 6.2.17. Comment 64 this is handled by TGe. Adopted by UC.

**Session recessed for the day at 9:35 PM.**

**Tuesday, July 9, 2002**

**1:00 PM – 9:30 PM**

**Session was called back to order at 1:10 PM.**

**Document 11-02-209r11 is the most recent version of our comment resolution document.**

- 6.3. Steve Halford, “Clause 19” Comment Resolution
  - 6.3.1. Comment 12 (SIGNAL field for OFDM) this is deferred to TGe by UC.
  - 6.3.2. Comment 21 The ACR statement is included in subclause 19.4.3.10.2. This subclause was added. There was no discussion. The proposed resolution was adopted by UC.
  - 6.3.3. Comment 24 PLCP header. This is transferred to TGe. Resolved by UC.
  - 6.3.4. Comment 26 SERVICE field this topic will be addressed by TGe. Resolved by UC.
  - 6.3.5. Comment 110 by Adrian Stevens. In subclause 19.4.3.8.5 we talk about the aCWmin value. Adrian: CWmin becomes a variable here. The comment is not addressed with this section. Chair: read 19.4.3.8.5. Adrian: This seems like it should be a part of the MAC. Editor: the PHY needs to give an aCWmin, and the MAC needs to select. Terry Cole: This only applies in the mixed mode. If the basic rate set contains an ERP rate, then this doesn't matter. Adrian: If this is a supported rate set, it is up to the STA and not the BSS. "... if the supported rate set of AP contains an ERP rate..." may be better wording. Chair: Basically, this section needs to be moved to a MAC section? Editor: Adrian, can you select the location in the MAC section where it should be located? Chair: Is there any objection to changing the text as shown "... if the supported rate set of AP contains an ERP rate ..." and let the editor and Adrian resolve this issue. There was no discussion. Done by UC. Terry Cole pointed out that the text occurs in three locations, so the group unanimously allowed the editor to resolve this. The comment was resolved by UC.
  - 6.3.6. Comment 111 was resolved in Terry's Section Comment 147.
  - 6.3.7. Comment 112 was a copy of 110.
  - 6.3.8. Comment 113 same comment as 111. Resolved by UC.
  - 6.3.9. These comments were copied to the “non-clause 19 and appendicies” tab. The resolutions have been consistent.
  - 6.3.10. Comment 117 was resolved as Non-clause 19 & Appendicies comment 150.
  - 6.3.11. Comment 118 was resolved as Non-clause 19 & Appendicies comment 151.
  - 6.3.12. Comment 119 was resolved as Clauses 19.5 and 19.6 comment 121.
  - 6.3.13. Comment 120 we have had some conference calls on channelization. Rishi and Anuj will propose text to resolve this. This is deferred until they are present.
  - 6.3.14. Comment 121 Slot time comment from Richard Van Nee. 11-02-433 is the document that will be presented at 3:30 PM (after the break). Deferred until later.
  - 6.3.15. Comment 123-127 (exact copies) Document 11-02-347 proposed a transmit mask. This was tabled at the last meeting, but fell off the table. Chair: Is there anyone who still needs more time to analyze the information in 11-02-347r1? Steve: presented 11-02-347r1 again. Dick Allen: The simulation didn't talk about ACR and distances. Steve: This doesn't address some of these issues. We can conclude that we will include an additional 7dB of interference. Nobody has come up with a good way to address this. Jan: Similar question. Tim Wakerly: With the 4 non-overlapping channel proposal, how does this affect the results. Steve: The presentation did not look at Channel 0 or 12. The mask won't be the limiting factor for these edge cases. Steve X?: Are you penalizing single individual channels with no other APs by this mask. Steve H: Yes this penalty applies to all systems, but it is probably a good idea because we cannot control all installations. We do have the 1.4dB penalty. Richard Williams: The majority of installations are restrictive and not the minority. If the distance is over 10 feet then this doesn't come into play.

**Recessed for break at 2:57 PM**

**Meeting called back to order at 3:35 PM**

- 6.3.15.1. Straw Poll regarding adjacent channel interference
  - 6.3.15.1.1. 1. Who would like to see no change regarding ACI?
  - 6.3.15.1.2. 2. Who wants the spectral mask of 11-02-347r1?
  - 6.3.15.1.3. 3. Something else (none of the above)
  - 6.3.15.1.4. Vote: (Option 1)27-(Option 2)28-(Option 3)4
- 6.3.15.2. Straw Poll (for voting members): If no change is made to the draft in the area of ACI and spectral mask:
  - 6.3.15.2.1. A. It will NOT generate a NO vote from me on the next 802.11g letter ballot.
  - 6.3.15.2.2. B. It WILL generate a NO vote from me on the next 802.11g letter ballot.
  - 6.3.15.2.3. Vote: (Option A) 41- (Option B)6
- 6.3.15.3. This resolution was adopted by UC.
- 6.3.16. Returning to Comment 121. Richard Van Nee is presenting 11-02-433r0 on Slot Times.
  - 6.3.16.1. Ron: If the AP shifts to long slots, then this should work.
  - 6.3.16.2. Richard: This is similar to the RTS/CTS situation. I would recommend that we use long slots if there are STAs that don't support the short slot time option.
  - 6.3.16.3. Duncan: Slide 3. I wanted to point out that the time was divided into two regions (data and overhead). I would like to point out that this is only true for only one node transmitting. This is showing the specific case where the slot time penalty is greatest.
  - 6.3.16.4. Todor: In a .11g only network, why should we make this optional rather than mandatory?
  - 6.3.16.5. Richard: That is a good question, but we think that it will generate NO votes if it were mandatory.
  - 6.3.16.6. Richard Williams: Making it mandatory it will not improve for the optional .11g modes.
  - 6.3.16.7. Richard Williams: The single carrier requirement is 15 us, but the OFDM is 4 us.
  - 6.3.16.8. Wim: Who says we have to do an Energy Detect in OFDM.
  - 6.3.16.9. R. van Nee: We have to do an ED for OFDM above -62 dBm.
  - 6.3.16.10. Sean: I like some aspects, but I am concerned about overlapping BSSs. We did this with aCWmin. We tried to maintain a sense of fairness between legacy and ERP devices. There seems to be a disadvantage. We need to be careful when everything is not under the control of one BSS. We want to bring .11a into the 2.4GHz band in a way that is backward compatible with .11b. Acknowledge there are some merits, but I believe there are issues w.r.t. legacy devices.
  - 6.3.16.11. R. van Nee: .11g already has a problem with legacy devices because of smaller CWmin. .11g also has the problem of lack of detection of the new OFDM packets. We already have RTS/CTS as a recommended practices for OFDM. We can use the same mechanism for the slot time.
  - 6.3.16.12. Chair: You made the point that we changed the aCWmin. The xIFS are a function of the slot time.
  - 6.3.16.13. R. van Nee: I asked the MAC people about it and they didn't see that there was a problem with the various times.
  - 6.3.16.14. Srikanth: This is purely based on one user.
  - 6.3.16.15. R. van Nee: There will always be a benefit of a shorter slot time, but it will decrease with more users. There will be greater advantage with fewer nodes, but we will always have an advantage with the shorter slot time. I looked at the effect with shorter packets and the percentage was greater (the benefit was greater). With a 500 byte packet we get up to a 50% increase of throughput.
  - 6.3.16.16. Rolf: How do we incorporate this into the draft. This seems to be a simple way of increasing the throughput. How much, if any, delay will this cause in getting the draft out?
  - 6.3.16.17. R. van Nee: If we can vote it in, we can do it now. We have the proposed text for it. It is easy if there is no support.
  - 6.3.16.18. Jim Zyren: I think this is a good proposal. I understand the concerns. I think we should approve this unless we can see overwhelming flaws. I think that we should make the 2.4 GHz band as close as possible to the 5 GHz band.
  - 6.3.16.19. Mark W: How would this fit into WNG techniques that are coming down the road? Will we miss out if this isn't put into the standard?
  - 6.3.16.20. R. van Nee: At one point or another we will have to look at the slot time because it has a large impact on the performance.

- 6.3.16.21. Matthew: What does optional mean? On the overlapping BSS issue, is it true that you are only to get this if the AP knows there is an overlap.
- 6.3.16.22. R. van Nee: Optional means that you are not mandated to put it in. The AP doesn't have to send it and the STA doesn't have to respond to it. The bit is only set if *all* STAs support it. As far as the overlapping BSSs, 1) the AP should be able to receive data from an overlapping STA, so it can adjust accordingly. Then it will see that there are STAs that cannot support it. 2) If an AP cannot discover the presence of an overlapping cell, there is a problem with .11g. We should handle this the same way as RTS/CTS.
- 6.3.16.23. Adrian: Your statement about the slot time being dominate isn't necessarily true with burst ACKs and CFPs.
- 6.3.16.24. R. van Nee: That is possible it won't be the dominating factor in the future.
- 6.3.16.25. Marcus: If you force a network to go back to long slots, it seems reasonable to reject access to the STA. Perhaps we should have a new reason code.
- 6.3.16.26. Editor: Legacy STAs won't understand the reason code, so there is no point in having a new reason code.
- 6.3.16.27. R. van Nee: Perhaps it is a good idea to have a straw poll.
- 6.3.16.28. Chair: We are not supposed to have straw polls to gauge support for a motion.
- 6.3.16.29. Sean: If there is a straw poll, I would like to see the question "do you like this idea and would you like to see it explored further?" I agree if you change this parameter, I agree we can get better performance. There are many things we can do to have slight performance increase.
- 6.3.16.30. R. van Nee: We shouldn't mix High Data Rate stuff with what we are doing now. We were trying to include .11a in the 2.4 GHz band, but we forgot the slot time.
- 6.3.16.31. Frank: I agree. The intent was to make .11g as good as .11a. If we don't do this now, we will be hampering .11g devices to be as good as .11a. The intent of .11g was to make .11a available in the 2.4 GHz band.
- 6.3.16.32. Dave Richkas: It was not in the PAR to make .11g as good as .11a.
- 6.3.16.33. Jim Zyren: Let's gauge the support.
- 6.3.16.34. Matthew Shoemake: I've heard "If we don't change it, we will never get as good as performance." Is it not true that .11e will take that advantage away?
- 6.3.16.35. Duncan: I would rather not carry the overhead of all the capability bits.
- 6.3.16.36. Frank: The point about .11e. I expect to see many devices that are .11g only and some that are .11g+e. We will get better performance with this option.
- 6.3.16.37. Rolf: I would like to introduce some text for slot times.
- 6.3.16.38. Matthew: The .11e EDCF still relies heavily on the slot time.
- 6.3.16.39. Duncan: The .11e EDCF does not rely heavily on the slot time. The reliance does go down heavily.
- 6.3.16.40. Straw poll suggestion by Rolf:
- 6.3.16.40.1. Who is in support of enhancing throughput by introducing an option for short slot times in 802.11g.
- 6.3.16.40.2. A. Support (57)
- 6.3.16.40.3. B. Don't Support (25)
- 6.3.16.40.4. C. Abstain (7)
- 6.3.16.40.5. Vote:
- 6.3.16.41. Adrian: POO: Are straw polls debatable?
- 6.3.16.42. Jim Z: In Robert's Rules, straw polls are dilatory.
- 6.3.16.43. Jim: The operating rules allow straw polls.
- 6.3.16.44. This straw poll is specifically for TGg.
- 6.3.16.45. Straw Poll vote (6.3.16.40 Straw poll): 57-25-7
- 6.3.16.46. Richard van Nee moves:
- 6.3.16.46.1. Add an optional short slot time mode to the draft TGg standard to support a 9us slot time. This is done by adding a Short Slot Time subfield to clause 7.3.1.4, and adding the following text to clause 19.4.3.8.4: 'As an optional mode, a slot time of 9 us shall be used if the Short Slot Time Subfield as defined in 7.3.1.4 is equal to one'
- 6.3.16.46.2. Moved: Richard van Nee
- 6.3.16.46.3. Seconded: Rolf Deveg
- 6.3.16.46.4. Discussion
- 6.3.16.46.4.1. Sean Coffey: When I asked about the overlapping BSS. This is incomplete, so I oppose the motion.

- 6.3.16.46.4.2. Duncan: We have talked about this long enough, so I would like to call the question.
- 6.3.16.46.4.3. Chair: no one has spoken in favour of the motion. You can yield and then call the question.
- 6.3.16.46.4.4. Richard van Nee: I have spoken of the benefits. I think this is the right way to go. I didn't include the specific wording for the recommended practices. I would like to have "if you detect...". The recommended practice can be resolved later.
- 6.3.16.46.4.5. Duncan: I would like to call the question
- 6.3.16.46.4.6. Seconded: Jim Zyren
- 6.3.16.46.4.7. Vote: Question is called by UC
- 6.3.16.46.5. Vote: 45-24-7 technical motion fails
- 6.3.16.47. The resolution is adopted by unanimous consent.

**Recessed for dinner at 5:30 PM until 8:00 PM so the membership can go to TGe.**

**Meeting called to order at 8:03 PM**

**Recessed until 8:20 PM for TGe.**

**Meeting called to order at 8:25 PM**

- 6.3.17. Comments 128-130. Adjacent channel rejection. Recommendation is to copy the same resolution as Comment 123-127. Resolution is adopted by UC.
- 6.3.18. Comment 131 the editor will make sure the references are correct. We don't believe a draft change is required. This resolution was adopted by UC.
- 6.3.19. Comment 132-139. We are resolving this in the same manner as 123-127 and 128-130. This was done by UC.
- 6.3.20. Returning to Comment 120. We are putting this off until later.
- 6.4. Clauses 19.5 & 19.6
  - 6.4.1. Comment 88. The spectral mask references have been corrected by the editor. PA backoff is implementation dependent, so it is not part of the standard. This is resolved by UC.
  - 6.4.2. Comment 112. The draft was clarified. The resolution was resolved by UC.
- 6.5. Terry Cole, "Non-clause 19 & Appendicies" Comment Resolution
  - 6.5.1. Comment 117 we worked on the wording and tried to make this section clear. We have had several conversations where we considered fragmenting. In the conference call we decided that exception was a bad thing. We have decided that the fragmenting exception is problematic. We need to note that a protection mechanism. We don't have a formal approval on these changes, but they were shown with the fragmentation exception removed. We believe Sean is happy with this resolution. We also believe that Adrian will be satisfied with this proposed change. We are adopting this resolution by UC.
- 6.6. Clause 19
  - 6.6.1. Comment 120 will be resolved by deferring until agenda item 8.
- 6.7. Do we believe we need to have a joint meeting with TGe?
  - 6.7.1. Terry Cole: I don't think we need to go further down the path.
  - 6.7.2. Chair: Are you referring to the protection mechanisms?
  - 6.7.3. Terry: Yes, but I don't feel strongly.
  - 6.7.4. Chair: Maybe we should have separate meetings. The outstanding issues were related to the scrambler issues.
  - 6.7.5. Terry: If the issue of slot times will come back up, we should do it together. If we aren't going to deal with it, we shouldn't worry about it.
  - 6.7.6. Chair: Recommends that we meet separately.
  - 6.7.7. We will meet separately unless TGe needs to meet. Agreed upon by UC of TGg.

**Document 11-02-209r12 is the final version of our comment resolution document.**

- 7. Presentation of Draft 2.9
  - 7.1. The draft was placed on the server.
  - 7.2. The editor presented the draft to the TG.



We recessed for the evening at 9:30 PM

Wednesday, July 10, 2002

8:00 AM – 5:30 PM

The meeting was called back to order at 8:15 AM

- 7.3. Changes since D2.9 (we are working on D2.9r1, the editor's working copy)
  - 7.3.1. The definition of protection mechanisms was added in clause 3.0.
  - 7.3.2. The order numbers are highlighted because the numbers could change based on the other task groups.
  - 7.3.3. The PBCC sensitivity is now in subclause 19.5.3.6.
- 7.4. ACR (subclause 19.4.3.2) This is written how the 802.11a standard is specified. This does not apply to PBCC. We do not have a cross ACR specification (PBCC vs. CCK-OFDM, OFDM vs. PBCC, etc.)
  - 7.4.1. Richard Williams: It doesn't seem totally clear that this is only for the ERP-OFDM mode. It would be nice to have clarity that this only applies to ERP-OFDM. We need to make sure that this is clear in subclause 19.5.
- 7.5. There are no further questions, so we are moving on to Agenda Item 8.
- 8. Presentation of other documents related to the draft
  - 8.1. Document 11-02-445 "CCA and Slot Time Relation," by Jan Boer
    - 8.1.1. Question: Have you thought about how much more reliable it would be to have a longer time to detect CCA?
    - 8.1.2. Jan: With OFDM, you have the whole short preamble time to detect CCA, so it could be much more reliable.
    - 8.1.3. Motion: Move to adopt the CCA changes specified on slide 5 of document 11-02-445r0.
    - 8.1.4. Moved: Jan Boer
    - 8.1.5. Seconded: Albert Young
    - 8.1.6. Discussion
      - 8.1.6.1. Richard Williams: I don't see what we gain by this. If we want to determine the length of the packet, the old version was better. This seems to reduce CCA to energy detect only.
      - 8.1.6.2. Jan: Why are you saying that this reduces to ED? This
      - 8.1.6.3. The basic discussion regarded the ED vs. the frame length. There was concern that this didn't do much. Richard didn't agree that this improved the reliability.
      - 8.1.6.4. No further discussion
    - 8.1.7. Vote: 12/14/19 technical motion fails

**5 minute recess to find Rishi**

- 8.2. Document 11-02-420 "Two Channel Text" by Rishi Mohindra
  - 8.2.1. Postponed until 1:00 PM (due to missing Rishi).
  - 8.2.2. See 8.8
- 8.3. Straw poll by Sean Coffey on the 4 channel option
  - 8.3.1. Straw Poll:
    - 8.3.1.1. A. Am interested in 4-channel option for 802.11g
    - 8.3.1.2. B. Am not interested in 4-channel option for 802.11g
    - 8.3.1.3. C. Don't care
    - 8.3.1.4. Discussion:
      - 8.3.1.4.1. Don: Has there been an update on the status of the 4-channel option?
      - 8.3.1.4.2. Chair: Yes, we discussed it on the conference call (document 11-02-403r0). In the conference calls, there were people advocating the 4-channel proposal and one advocating a 2-channel proposal. There were some concerns about using channel 0 and 12.
      - 8.3.1.4.3. Sean: This is not binding, we just want a feel for the sentiment of the body.
      - 8.3.1.4.4. Mark Webster: There was some concern about adjacent channel interference as well as the forbidden band.
      - 8.3.1.4.5. Don: I guess that none of the three options. I think the third option should be Not Sure, so I need more information.
      - 8.3.1.4.6. Chair: Let's add
    - 8.3.1.5. D. Not Sure. Need more Data.
    - 8.3.1.6. Vote: A-5/B-32/C-11/D-17
- 8.4. General Tab Comment 66.

- 8.4.1. Sean: That is fine, we should consider this completely dropped. I am a little concerned about one of our comments on our response on coexistence. I want to make sure we don't get more NO votes. The coexistence text is fine, but I am concerned about the resolution text.
- 8.4.2. Chair: Do you have alternate resolution text?
- 8.4.3. Working on the text of the resolution to make it less coarse.
- 8.4.4. Discussion:
- 8.4.4.1. Just to say that there are receiver issues seems problematic. I believe we should strike the last sentence.
- 8.4.4.2. Steve: The first two sentences are good, but I am concerned with the last two.
- 8.4.4.3. Kevin Smart: Perhaps we should also include the added coexistence statement reference.
- 8.4.5. We agreed upon the new resolution statement by UC. The resolution document will be saved as r13.

Document 11-02-209r13 is the final version of our comment resolution document.

- 8.5. Richard Williams: I am slightly unhappy with the definition of ERP-OFDM in clause 4.
- 8.5.1. The text was modified to reference subclause 19.4 instead of just clause 19.
- 8.5.2. This was agreed upon by UC.

**Recessed at 9:44 AM.**

**Meeting called to order at 1:15 PM.**

- 8.6. Move to modify the agenda to make agenda item 11 a special order for tomorrow at 1:30 PM.
- 8.6.1. This was done by UC.
- 8.6.2. The new agenda is in Document 11-02-398r2.
- 8.7. There was a question about how things could proceed in finalizaing the 802.11g standard.
- 8.7.1. The Chair went to the 802.11 web site to showed the estimated schedule under the TGg section.
- 8.7.2. The estimated schedule shows possible completion on May 2003.
- 8.8. Document 11-02-420r1 "Two Channel Text" by Rishi Mohindra
- 8.8.1. The presentation was given
- 8.8.2. Questions:
- 8.8.2.1. Mark Webster: In TGg, one of our major goals was for nearby cells. Have you thought of the impact with this setup?
- 8.8.2.2. Rishi: For the first two networks, the performance is good. When a third network needs to come up, the previous channelization will need to be used.
- 8.8.2.3. Mark: Is that not difficult in apartments and in small businesses.
- 8.8.2.4. Rishi: This is an option and the user has the options. We don't want to penalize everyone if there are only one or two networks.
- 8.8.2.5. Steve Poe: When looking at the FCC forbidden band, did you include an antenna gain?
- 8.8.2.6. Rishi: If you have antenna gain, you need to take that into account.
- 8.8.2.7. Steve Halford: Why do you say the probability is low for using all three channels? We are using three channels here and many businesses also use all three channels.
- 8.8.2.8. Rishi: T
- 8.8.2.9. Steve: So basically you have no basis for those numbers.
- 8.8.2.10. Tom: There is no change required to do what you are proposing. The standard already supports this.
- 8.8.2.11. Question: If you would like to do this, you can. How will this coexist with 802.11b?
- 8.8.2.12. Dick Allen: Isn't the FCC requirement already in the standard? If so, why put something else in the standard. It is up to the implementor.
- 8.8.2.13. Rishi: This is not normative, but informative.
- 8.8.2.14. Steve H: Go to slide 12. Why does 64-QAM require more backoff than BPSK?
- 8.8.2.15. There was a discussion about BPSK and 64-QAM and the spectral differences.
- 8.8.2.16. Dick Allen: Why should we do this since the standard already allows for this?
- 8.8.2.17. Rishi:
- 8.8.2.18. Terry: In your text you said "it is preferable" I believe it really should be "it may be preferable." I find it difficult to believe that we start with two channels and try to move to three.
- 8.8.2.19. Steve Poe: I get the same results as Rishi in that 64 QAM requires slightly more backoff.
- 8.8.3. Motion

- 8.8.3.1. Move to add the text on slide 8 of 11-02-420r1 to section 9.4.3.8.2 of the 802.11g draft standard.
  - 8.8.3.1.1. Moved: Rishi
  - 8.8.3.1.2. Second: John Terry
  - 8.8.3.1.3. Discussion:
    - 8.8.3.1.3.1. Dick Allen: Speaks against. The FCC requirements can be met without changing the standard. Finally, this will be used against 802.11g in the marketplace.
    - 8.8.3.1.3.2. Carl Andren: All of the arguments assume a given PA capability. There is a lot of research going on for high linearity PAs that will make this obsolete.
    - 8.8.3.1.4. Vote: 1/27/8 motion fails
- 8.9. Other issues with Draft 2.9.
  - 8.9.1. Richard Williams: There was some contention about the slot times. The commentor was not satisfied.
  - 8.9.2. Chair: Would you like to make a motion. The previous motion failed. There is nothing that would limit the discussion.
  - 8.9.3. Bill Hogan: Parliamentary Inquiry: What is the process to reconsider the failed motion on the Slot Times.
  - 8.9.4. Chair: On agenda item 8, we can discuss issues, so we can discuss this issue.
  - 8.9.5. Bill: I understand there is a document that should be available at 3:30 PM tonight.
  - 8.9.6. Chair: There is no issue with presenting a document at 3:30. Is there a document number?
  - 8.9.7. Not yet
  - 8.9.8. Richard: Perhaps we should make a motion to reconsider the previous motion. (This is essentially a parliamentary inquiry.)
  - 8.9.9. Chair (after reading Robert's Rules): Yes it can be reconsidered.
  - 8.9.10. Bill: If the motion to reconsider passes can we amend it?
  - 8.9.11. Chair: Yes, the motion can be reconsidered by a simple majority.
  - 8.9.12. Terry: POO I understand that the mover has to be on the prevailing side.
  - 8.9.13. Chair: That is true, but we do not keep rolls, so we cannot do that.
  - 8.9.14. Motion:
    - 8.9.14.1. Move to reconsider the motion discussed in 6.3.16.46.
      - 8.9.14.1.1. Moved: Richard Williams
      - 8.9.14.1.2. Seconded: Albert Young
      - 8.9.14.1.3. Discussion:
      - 8.9.14.1.4. Vote: 35-3-4 motion passes

**Recessed at 2:27 PM.**

**Meeting called to order at 3:38 PM.**

- 8.10. The chair asked to turn the floor over to the editor to discuss the capability bits and information element bits. The body agreed by UC.
  - 8.10.1. Motion:
    - Request ANA to issue bits to TGg
      - 7.3.1.4 Capability information bit
        - CCK-OFDM capability bit (suggest 13)
      - 7.3.2 Information element bit
        - NonERP indication bit (suggest 11)
    - 8.10.1.1. Moved: Carl Andren
    - 8.10.1.2. Seconded: Matthew Shoemake
    - 8.10.1.3. Vote: 37-0-0 motion passes
  - 8.11. Motion reconsidered from 8.9.14:
    - 8.11.1. Add an optional short slot time mode to the draft TGg standard to support a 9us slot time. This is done by adding a Short Slot Time subfield to clause 7.3.1.4, and adding the following text to clause 19.4.3.8.4: 'As an optional mode, a slot time of 9 us shall be used if the Short Slot Time Subfield as defined in 7.3.1.4 is equal to one'
      - 8.11.1.1. Originally Moved: Richard van Nee
      - 8.11.1.2. Originally Seconded: Rolf Deveg
      - 8.11.1.3. Discussion:
        - 8.11.1.3.1. Richard van Nee presented Document 11-02-433r1.

- 8.11.1.3.1.1. Discussion
- 8.11.1.3.1.1.1. Jim Z: If there were only .11g devices we could use other slot times such as 15 us?
- 8.11.1.3.1.1.2. Richard V: Yes. If legacy (.11b) devices join, then we would have to move to the 20 us slot times.
- 8.11.1.3.1.1.3. Don S: I speak in favour of the two slot time options for simplicity.
- 8.11.1.3.1.1.4. Marcus Gaheller: If we have a variable slot time, does that mean all of the other times are variable as well?
- 8.11.1.3.1.1.5. Richard V: If the slot time is variable, that means the slot time tolerance is also variable.
- 8.11.1.3.1.1.6. Mark W: The long slot time is necessary to detect with 0dB SNR signals. This only occurs with the 1 Mbps signal. There doesn't seem to be a reason to service those types of STAs because we require a higher SNR for our frames. Thus, we should only have the two options.
- 8.11.1.3.1.1.7. Jim Z: A lot of people are in TGe, where people would have concerns about varying slot times. My fear is that if this appears to have higher complexity, we may fail our letter ballot. I like the 9us and 20us option. If we can't do that, we should just leave this as-is.
- 8.11.1.3.1.1.8. Frank: Out of these choices, you think C is the only viable choice?
- 8.11.1.3.1.1.9. Jim: No, but I'm not sure about having all the variability.
- 8.11.1.3.1.1.10. Sean: I think we should have the straw poll. This is a non-binding straw poll.
- 8.11.1.3.1.1.11. Frank: I believe time is of the essence. I think we should do this, we had 65% support before. We should vote on C to get this into the draft.
- 8.11.1.3.1.1.12. Richard W: I agree time is of the essence. C gives us the option of a 9us slot time. I would choose A or B for flexibility.
- 8.11.1.3.1.2. Straw Poll
- 8.11.1.3.1.2.1. A: Include a variable slot time with the following format 20us minus the short slot-time subfield (4-bit number 0-15 or 0-11)
- 8.11.1.3.1.2.2. B: Include a 9us, a 15us, and a 20us slot time option
- 8.11.1.3.1.2.3. C: Only include the 9us (802.11a) and the 20us (802.11b) slot time option
- 8.11.1.3.1.2.4. D: Would like to see more data.
- 8.11.1.3.1.2.5. The body can vote multiple times
- 8.11.1.3.1.2.6. Vote: A-7/B-8/C-46/D-2 (option D will be in r2 of the document)
- 8.11.1.3.1.3. There was more discussion about the merits of the proposal. The people who have the most concerned are encouraged to get together to keep from getting more NO votes.

**Meeting recessed at 5:28 PM**

**Thursday, July 11, 2002 8:00 AM – 5:30 PM**

**Meeting called to order at 8:15 AM**

There was an announcement regarding attendance. Due to the problems with the books getting around, attendance will be on the honor system. An e-mail to apetrick@icefyre.com with the subject line Vancouver-LastName-FirstName-Attendance. The attendance will be compared against the registration.

There was a reminder of the agenda and the special order for agenda item 11.

- 8.11.1.3.1.4. The proposed text for this short slot time option is in Document 11-02-470r1.
- 8.11.1.3.1.4.1. Paper was presented by Richard van Nee.
- 8.11.1.3.1.5. Motion to amend (subsidiary motion).
- 8.11.1.3.1.5.1. Move to amend the motion to replace the words following 'This is done by' with 'including the proposed text in document IEEE802.11-02-470r1 in the TGg draft text.'
- 8.11.1.3.1.5.2. Moved: Richard van Nee

- 8.11.1.3.1.5.3. Before the motion was seconded, Terry Cole suggested a change. He would like to see some clarifying text. Richard and Terry worked on the text and the document was modified and became 470r2.
- 8.11.1.3.1.5.4. Move to amend the motion to replace the words following 'This is done by' with 'including the proposed text in document IEEE802.11-02-470r2 in the TGg draft text.'
- 8.11.1.3.1.5.5. Moved: Richard van Nee
- 8.11.1.3.1.5.6. Seconded: Rolf Devegts
- 8.11.1.3.1.5.7. Discussion:
  - 8.11.1.3.1.5.7.1. Question: What happens is on STA is a g STA and it is next to a b STA.
  - 8.11.1.3.1.5.7.2. R. van Nee: This case is covered in the text. It is mandatory to switch to the 20 us slot times, but it does not say how to do it.
- 8.11.1.3.1.5.8. Vote: 53-0-3 the amendment passes
- 8.11.1.4. Current motion on the floor:
  - 8.11.1.4.1. (Provided by the TGg Chair)

## Motion: Add an optional short slot time mode to the draft TGg standard to support a 9us slot time. This is done by:

**In clause 7.3.1.4, add a Short Slot Time Subfield to the capability field (bit b14 or any other bit that is available) and add the following text:** 'If the short slot time option is implemented, the slot time shall be equal to 20 microseconds if the Short Slot Time Subfield is zero, and 9 microseconds if the Short Slot Time Subfield is one. A STA that wishes to operate with the shorter slot time shall set the Short Slot Time Subfield to the value one in transmitted Association Request and Reassociation Request MMPDUs when the MIB attribute dot11ShortSlotTimeOptionImplemented is true. Otherwise, STAs shall set the Short Slot Time Subfield to 0 in transmitted Association Request and Reassociation Request MMPDUs.

APs shall set the Short Slot Time Subfield corresponding to the longest supported slot time of all associated STAs in transmitted Beacon, Probe Response, Association Response, and Reassociation Response MMPDUs to indicate the currently used slot time value within this BSS. If a STA associates that supports a slot time that is longer than the currently used slot time, the AP shall revert to this longer slot time in the first beacon subsequent to the association of the longer-slot time STA. In the case of a network composed of only short slot-time devices, but with knowledge of a neighboring co-channel BSS having longer slot-time traffic, the AP shall switch to the longest slot-time of the overlapping BSS's.

**Add the following text to clause 19.4.3.8.4:** 'If the short slot time option is used by having a non-zero value of the Short Slot Time Subfield in 7.3.1.4, the slot time shall be as specified in 7.3.1.4.'

### Add following entry to the dot11PhyERPEnter table in Annex D

dot11ShortSlotTimeOptionImplemented OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This attribute, when true, shall indicate that the Short Slot Time option as defined in subclause 7.3.1.4 is implemented. The default value of this attribute shall be false."

::= { dot11PhyERPEnter 3 }

### Add Annex F: Short slot time option recommended practices (informative)

When using the short slot time option as defined in 7.3.1.4, it is recommended that a mechanism be used that ensures that a BSS reverts to the mandatory 20 microseconds slot time in cases where there exists an overlap with a co-channel BSS that uses a long slot time. If the short-slot BSS does not revert to the 20 microsecond slot time in this situation, it reduces the throughput of the overlapping long-slot time BSS, because the long-slot time users on average use longer backoff delays and hence have less probability of getting a clear channel to send their packets.

One possible mechanism to ensure that the short slot time BSS reverts to the mandatory 20 microseconds slot time in an overlapping BSS situation is as follows: if an STA that uses a short slot time receives a beacon from a neighbouring AP indicating a long slot time, the STA disassociates from its current BSS and subsequently reassociates with its Short Slot Time Subfield set to zero. In this way, the STA is forcing the AP to revert to the 20 microsecond slot time.

For IBSS, it is recommended to use a zero Short Slot Time Subfield corresponding to a 20 microseconds slot time.

- 8.11.1.4.2. Discussion:

- 8.11.1.4.2.1. Marcus Gahler: Motion to amend to have an indication of what is recommended and a capability of what is supported. The exact text was worked on by Marcus, TGg Chair, and Richard van Nee.
- 8.11.1.4.2.2. Marcus withdrew his motion to amend.
- 8.11.1.4.2.3. Richard Williams: Do we want to relax the CCA requirements?
- 8.11.1.4.2.4. Chair: There is nothing about the CCA in this motion.
- 8.11.1.4.2.5. R. van Nee: I see the CCA as a different subject. I would suggest to talk about it after this subject.
- 8.11.1.4.3. Vote: technical motion 48-1-5 passes
- 8.12. Jan Boer: There might be a problem with CCA because the 11b spec has a reference to 15us. I am not sure, but there is a concern.
- 8.12.1. Chair: Richard Williams and Jan should get together and try to resolve this issue.

**Recess until 10:30 AM at 9:18 AM.**

**Meeting called to order at 10:38 AM.**

- 8.13. Jan and Richard didn't believe there were any inconsistencies with the draft.
- 10. No more known issues, so we are going over 2.9r2, which is in the TGg area on the server.
  - 10.1. There is an issue with some of the new text regarding the short slot time option.
    - 10.1.1. Mark Webster: The communication should be AP to AP and not STA dependent.
    - 10.1.2. Dick Allen: Relying on inter-AP communications isn't the most reliable.
    - 10.1.3. Editor: That is the minimally overlapped case.
    - 10.1.4. Don: I like the idea of the AP only mechanism.
    - 10.1.5. Marcus: If there is overlap, the APs will see STAs from the other side. I don't think we need a lot of mechanism for STAs.
    - 10.1.6. Chair: This is going to be difficult to figure out in committee. We can leave the draft as-is and work on LB comments. We could recess now and try to solve this issue, but we are running out of time.
    - 10.1.7. Straw Poll:
      - 10.1.7.1. A: Who would anticipate a NO vote based on the text as is
      - 10.1.7.2. B: Who would believe this would NOT be the basis for a NO vote
      - 10.1.7.3. Vote: A-0,B-21
    - 10.1.8. Dick: There are some disturbing holes with this mechanism, but it is not worth holding up the process.
    - 10.1.9. Chair: I would like to recommend that we move on. Request to the membership to identify the issues with this statement. If you vote YES and have a comment, we will resolve the comment.
    - 10.1.10. Dick: It would be nice to see some analysis of this potential problem. If the problem is not as big as some of us fear, the issue goes away.
  - 10.2. David Fotland: In 19.4.3.8.4, there is a question of whose subfield.
    - 10.2.1. The group changed it to the AP's subfield by UC.
  - 10.3. We did pass a motion to request bits and element ids. We need to get those numbers before the draft can be finalized. These are simply editorial changes.
  - 10.4. The chair is requesting Carl (the editor) to convert the draft to 3.0.

**Recess until 1:00 PM**

**Joint Meeting Called to order at 1:15 PM**

- 9. Joint Meeting with 802.18
  - 9.1. Carl Stevenson hosted the meeting
  - 9.2. Document 18-02-009 was presented
  - 9.3. Action item from previous meeting: Regulatory status for FCC, NTP, and ETSI
    - 9.3.1. FCC—The requirements have changed, so OFDM is permitted in 2.4GHz band
    - 9.3.2. NTP—An e-mail from a gentleman from Sony stated that the 2.400-2.483GHz band will allow OFDM (this was a forwarded e-mail from Vic Hayes).
    - 9.3.3. ETSI—No official statement, but the feeling was that OFDM is allowable.
    - 9.3.4. Questions on other regulatory domains—somewhat uncertain about Latin America, but Canada generally follows FCC rules.
- 10. Presentation of Draft 3.0

- 10.1. Motion: Move to request
  - Request ANA to issue bits to TGg
  - Capability information bit
  - Short Slot Time capability bit (suggest 13)

- 10.1.1. Moved: Matthew Shoemake

- 10.1.2. Seconded: John Terry

- 10.1.3. Vote: 26-1-1 motion passes

See above section 10 for the resolution of this agenda item after the discussion of 2.9r2, the suggestions were incorporated and the Draft 3.0 was created.

11. Motions to Adopt Draft and Issue Letter Ballot (Special Order to occur at 1:30 on Thursday, July 11, 2002)

- 11.1. Move to request that the IEEE 802.11 WG issue a working group letter ballot on Draft 3.0 of the IEEE 802.11g standard, and instruct the editor of 802.11g to insert any bit assignments received from the ANA.

- 11.2. Moved: Sean Coffey

- 11.3. Seconded: John Terry

- 11.4. Discussion:

- 11.4.1. Steve Halford: Will the portion regarding the bit assignment from the ANA cause people to question the completeness of the draft?

- 11.4.2. Chair: I don't think it would matter if we take that part out.

- 11.4.3. Motion to amend by striking out the last part of the sentence.

- 11.4.4. Motion passes by unanimous consent

- 11.5. Move to request that the IEEE 802.11 WG issue a working group letter ballot on Draft 3.0 of the IEEE 802.11g standard.

- 11.5.1. Vote: 40-0-3 motion passes

12. Unfinished Business

- 12.1. None

There was no objection to adjourning, so the meeting adjourned at 1:46PM.

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**IEEE P802.11  
Wireless LANs**

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**TGh minutes, July Plenary meeting,**

**Vancouver, BC**

July 11, 2002

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Meeting opened by Mika Kasslin at 3:30pm July 8, 2002

Motion (procedural): to approve agenda 02/397r0, as amended, by Peter Ecclesine seconded by Mike Derby  
Discussion none.

Yes: 16

No: 0

Abs: 1

Motion passes.

Agreement reached to postpone approval of Sydney minutes to 9am Tuesday to facilitate document distribution.  
Document has again been placed in to-doc-keeper for posting to 802.11 server on Monday.

Presentation: 02/392, Mike Moreton, IBSS TPC Issues

Clarified by Bob Ohara that the country codes from 11d are taken from ISO definitions, as such they represent individual countries rather than an abstract regulatory domain such as CEPT.

Comment resolution process discussion lead by Mika Kasslin and Andrew Myles. Documents:

02/402 r0 Draft Normative Text Proposal

02/396 r0 Preliminary Letter ballot #36 Resolutions

Andrew Myles provided a report on comment resolution status.

<b>Status</b>	<b>Comments</b>	
Deferred	25	4%
Accepted	365	54%
Clarification	35	5%
Declined	220	33%
No longer relevant	23	3%
Withdrawn	7	1%
<b>Total</b>	<b>675</b>	<b>100%</b>
Total comments	675	

Details are available in the spreadsheet *Resolutions v2.1.18* which has been placed on the TGh working area \\venus1\802.11\WorkingGroups. Will be updated daily, or as needed.



Andrew walked through the draft 802.11h D2.1.18 (based on 02/402, on server in TGh working area) explaining his changes to the document. Changes were made based on discussion with the document and its version number updated on the server.

Joint .18/TGh meeting 8am July 9.

Report on BRAN meeting and Harmonized Standard – Mika Kasslin *11-02-445r0-H-Harmonized\_Standard\_after\_BRAN29*

Report on ITU-R, ... - Carl Stevensen

US NTIA – still no formal US position on agenda item 1.5 of WRC. WECA & BRAN both performing sharing studies of potential interference to RADAR – both expected to show that interference to RADAR is less of a problem than stated by RADAR community. NTIA is likely to petition FCC to re-open UNII rules and ask for power reduction & indoor use restrictions.

Presentation: 02/390, Gil Bar-noy, Spectrum Capability Extension for Power Sensitive Devices

Straw poll: Shall we include a feature to allow a station to indicate that they are power sensitive?

Yes: 18

No: 9

Abs: 7

Motion (technical): by Andrew Myles seconded by Peter Ecclesine as follows:

Month 2001

doc.: IEEE 802.11-01/xxxx0

### TGh moves that the editor be empowered to request the WG ANA for the following numbers

- 10 element IDs (clause 7.3.2), preferably:
    - 32 - Power Constraint
    - 33 - Power Capability
    - 34 - TPC Request
    - 35 - TPC Report
    - 36 - Supported Channels
    - 37 - Channel Switch Announcement
    - 38 - Measurement Request
    - 39 - Measurement Report
    - 40 - Quiet
    - 41 - IBSS DFS
  - 2 reason codes (clause 7.3.1.7), preferably:
    - 10
    - 11
  - 3 status codes (clause 7.3.1.9), preferably:
    - 22
    - 23
    - 24
  - 1 Action category (clause 7.3.1.11 in new 802.11h draft), preferably:
    - 0 - Spectrum Management
  - 1 capability bit (clause 7.3.1.4), preferably:
    - B8 - Spectrum Management
- Details of motion**
- Proposed: Andrew Myles
  - Seconded: Peter E
  - Yes 19
  - No 0
  - Abs 0

Submission

Page 2

Andrew Myles, Cisco Systems

Thursday July 11, 2002

Presentation: 02/462, Bill McFarland, Backwards/Forwards compatibility for 11h

Motion (procedural): by Evan Green seconded by Peter Ecclesine to approve the minutes 02/330 of the May meeting held in Sydney.

Yes: 22

No: 0

Abs: 2

Motion (technical): To approve document 802.11h D2.1.32 as a draft standard.

Moved by: Andrew Myles  
Seconded: Charles Wright  
Yes: 21  
No: 0  
Abs: 1

Motion (technical): To approve 02/396r2 as comment resolutions from letter ballot 36.

Moved by: Peter Ecclesine  
Seconded: Simon Black  
Yes: 22  
No: 0  
Abs: 1

Motion (technical): Instruct the chair to bring an appropriately worded motion in the WG plenary asking the WG to conduct a WG letter ballot or recirculation ballot on 802.11h D2.1.32.

Moved by: Amjad Soomro  
Seconded: Bala Balachander  
Yes: 21  
No: 0  
Abs: 1

Motion (procedural): To empower TGh to hold an interim meeting in September 2002, conduct teleconferences, process letter ballot or recirculation ballot comments and consequently revise 802.11h D2.1.32 before the November 2002 IEEE 802 plenary.

Moved by: Bill McFarland  
Seconded: Dirk Ostermiller  
Yes: 23  
No: 0  
Abs: 0

Motion (procedural): The WG, if necessary, conduct a WG letter ballot or recirculation ballot after the Sep 2002 interim meeting, for the purpose of forwarding a revised 802.11h D2.1.32 to sponsor ballot.

Moved by: Amjad Soomro  
Seconded: Andrew Myles  
Yes: 25  
No: 0  
Abs: 0

Motion to adjourn the meeting by Andrew Myles seconded by Charles Wright. Passed with no objections.