IEEE 802.16
Working Group on Broadband Wireless Access

Meeting #1 Minutes [Approved 99/09/17]

Queen Elizabeth Hotel, Montreal, Quebec, Canada

6 to 8, July 1999

1. Tuesday, 6 July 1999

1.1 Opening Remarks

08:14 Roger Marks, chair, call to order. Scott Marin Secretary

Review of agenda. Roger asked for additions.

08:20 Agenda approved without objection. Approved agenda in Appendix A,

1.2 Attendance Book

Scott Marin introduced and started circulation of the attendance book. About 85 people were in the room. Rules: Sign for every session (morning, afternoon, 6 total currently scheduled for Montreal meeting), Don't sign ahead, don't sign behind, use initials instead of check or X, book will be circulated for every session

1.3 Document Distribution at Meeting

As a method of document distribution, the web page (http://grouper.ieee.org/groups/802/16) including all associated documents except the e-mail reflector files was placed on a Flash Memory card and distributed around the room. Electronic distribution is the preferred method over hardcopies so everyone should bring a laptop to meetings. Hardcopies will normally not be provided.

1.4 Chairman's report

Roger Marks discussed voting rights, documents, legal disclaimers, patent issues, voting rights, elections, and other topics (See presentation in Appendix A).

802.16 E-mail Reflector

The e-mail reflector at stds-802-16@ieee.orgs is active. Subscription instructions are on the 802.16 web page (http://grouper.ieee.org/groups/802/16). For submission of systems requirements, start the subject line with word "SYSREQ". Contributions to the group should not go out to the reflector; after the document has been accepted, numbered, and posted. The relevant Task Group co-ordinator (or other cognizant person) should send only a pointer to the contribution rather than attaching the document to the e-mail. When replying to reflector e-mail, the default is to reply to only the sender of the message. The default reply does not go out automatically to the whole list.

802.16 Web Page

The 802.16 web site has been set-up: http://grouper.ieee.org/groups/802/16. A document submission template has been set up that contains detailed submission instructions. Download the template and use it for your submissions. Roger is in charge of document numbers; submit contributions to him and to the relevant person for each task group. A password-protected area will be available to keep such items as copyrighted drafts when they are generated in the future.

N-WEST Web Page

The web page used by N-WEST and the 802.bwa study group is also still active at http://nwest.nist.gov.

1.5 Liaison Reports

09:16 Paul Khanna Liaison to ETSI Bran summarized document (802.16lb-99/01) and reported: Open issues include: document exchange process, guidelines to submit documents in parallel to 802.16 and BRAN Hyper Access/TM4, and possible next joint meetings. Jay Klien presented more details. ETSI Hyper Access (HA) decided to use a point-to-multipoint instead of mesh radio architecture. ETSI HA decided to develop a standard based on FDD but will also include provisions for TDD.

09:36, Erol Yurtkuran, Liaison to National Spectrum Managers Association (NSMA) reported: There is a large (about 50%) overlap of members between NSMA and 802.16. NSMA has a mature process for dealing with interference issues between members. Next meeting May 22-25, 2000 Washington, DC. Chair Larry Sutliff, sutliff@lucent.com, NSMA has a sub-committee on LMDS frequency sharing issues.

09:40, Jose Costa, ITU-R Joint Rapporteur Group, JRG8a-9b, summarized document 802.16li-99/01. Meeting next week in Ottawa, Canada.

1.6 Task Group Reports

09:45, Leland Langston, Co-existence Task Group, summarised the group's status as follows: draft PAR finished in the Boulder meeting, draft PAR submitted on June 4 for 802 level approval, no feedback other than confirmation that the PAR has been received. Call for papers issued (see web page) and five contributions (documents 802.16cc-99/05 /06 /07 /08 and /10) were received.

09:50, Jim Mollenauer, MAC Task Group, summarised the group's status as follows: no call for contributions because of need to keep focus on systems group. Two contributions (documents 802.16mc-99/01 and /02) were received.

09:54, Brian Petry, System Requirements Task Group, summarised the process and origins of the task group. Brian Petry summarised the Boulder meeting, and reported that twelve contributions (documents 802.16ss-99/12 /14 /15 /16 /17 /18 /19 /20 /21 /22 /23 /24) were received in response to call for contributions posted on the web page. Brian Petry noted that there hasn't been much e-mail discussion so the true state of consensus is unknown. Brian Petry consolidated the contributions into a draft systems requirements document (802.16s0-99/1).

10:03, Jay Klein, PHY Task Group, one contribution (802.16pc-99/01) containing an outline was submitted. Jay Klein noted that the Montreal meeting is the first meeting of the PHY Task Group.

10:06, Roger Marks, break until 10:30.

1.7 System Requirements Task Group

10:30, Brian Petry, Chair of System Requirements, See detailed minutes in Appendix C.

1.8 Coexistence Task Group

13:50 , Coexistence Task Group departs systems requirements task group session

Leland Langston, Chair of Co-existence task group. See detailed minutes in Appendix D

2. Wednesday, 7/7/99

Systems and Coexistence task groups continued in parallel sessions, see Appendix C and D, respectively

3. Thursday, 17/8/99

8:00 Phy Task Group, Appendix E
10:00 MAC Task Group, Appendix F

11:50 Scott Marin, To allow preparation of ballots over lunch, admin discussion on method of secret ballot if multiple nominees are accepted when voting for 802.16 Chairman.

Scott Proposed the following process choices:
1) Issue tokens (most difficult)
2) Name on ballot (easier, not totally secret, but voting status is verifiable if necessary)
3) on your honour (easiest but cheating possible)

No objections to using process 3

12:00 break for lunch

3.1 802.16 Plenary

13:00 Roger Marks, Chair, Scott Marin Secretary
Afternoon agenda approved without objection

Voting Membership for Session 6

Scott Marin announced and displayed a list of 106 people who had attended 4 or 5 of the 5 sessions through noon on Thursday, 8 July 99 and were therefore were eligible to vote in the Thursday afternoon session (Session 6) Scott Marin asked for objections to the list.
No objections.

Roger Marks as the 802.16 chair's discretion granted 802.16 voting membership for both Montreal Session 6, and for 802.16 voting membership in general to the following 5 people.
Doug Sward, Doug Gray, Jeff Foerster, Sanjay Moghe, Rami Hadar
No objections

(Later Roger Marks noted that Sanjay Moghe had qualified as a voting member via session attendance).

111 people were eligible to vote at the Closing Plenary if in attendance. At the session close, 106 became charter Voting Members.

Approval of Austin and Boulder Meeting Minutes

Voting membership to 802.16 as a result of all six Montreal sessions is also in Appendix B.

Motion 1, Jim Mollenauer, 2nd Leland Langston, to approve the Austin minutes.

Voice vote. All for, No objections. Motion 1 passes.

Motion 2, Chet Sharali, 2nd Ted Boone, to approve the Boulder minutes.

Voice vote, All for, No objections, Motion 2 passes.

13:30

PAR Numbering
The number 802.16.1 will be proposed for the air interface standard and 802.16.2 for the co-existence guidelines.
No objection.

13:37

Patent Policy Committee

Roger Marks designated the patent Committee as: Brian Kiernan, Ray Sanders, and Fred Lucas.
No objection.

Election of 802.16 Chairman

13:45 Scott Marin chair, topic Election of 802.16 Chairman

Scott reaffirmed that the balloting process, if necessary, would be on the honor system.
no objections.

Scott Marin proposed the following Process for electing the 802.16 Chairman:
Nominations for 802.16 Chair
Close nominations
If only one nominee, then ask for unanimous consent (tally count).
If multiple nominees,
1) Each candidate can address the group for five minutes (with the other
candidate out of the room).
2) Short discussion. This is to enable members to make their cases in support
of their candidate. No negative comments allowed.
Ask for two volunteers to count ballots, ask for unanimous consent on ballot counters.
3) Secret paper ballot. Majority wins. Ballots are destroyed after the
election. Two approved volunteers count the ballots.
4) If there are three candidates, eliminate the lower one and then vote
again.

No objections to using proposed process.

Scott Marin opened Nominations for 802.16 Chair
Roger Marks nominated by Brian Petry, 2nd by Ray Sanders.

Motion 3, Ray Sanders, 2nd Zev Bogan, that nominations be closed.

No objections. Motion 3 passes, Close nominations

As only one candidate, the group proceeded with show of hands vote.
41+41/0/0, 82/0/0, Roger Marks elected as 802.16 Chair.

Election of 802.16 Vice Chair

14:00 Roger Marks Chair
Roger Marks nominated Lou Olson for Vice Chair. 2nd Ray Sanders.
Discussion, none offered
40+39/0/2, 79/0/2, Lou is vice-chair.

14:05

Next Meeting

4-6 August, Systems Task Group, Denver Colorado

Task Group Reports

14:15 Leland Langston, Report on Coexistence task group,
About 30 people attended task group
5 contributions presented and discussed.
Draft topical outline developed for coexistence practice (See Appendix D).
Interim meeting planned for Sept 16-17 in Boulder, Co.
No further comments have been received from the 802 executive committee on proposed coexistence PAR.

14:20

> Motion 4, Leland Langston, 2nd Jim Mollenauer, To formally submit PAR, designated at 802.16.2, as has been posted on web page to 802 executive committee.

31+33/0/3+1,64/0/4 motion 4 passes.

14:25 Brian Petry, System Requirements Task Group,
Draft Systems Requirements Document, 802.16s0-99/1 Released a few days prior to the Montreal meeting in which Brian Petry had consolidated inputs from the contributions that had been submitted.
Received many comments during the task group working sessions at the Montreal meeting. The task group voted to accept the edited draft as a working document and to make the requirements binding on the interoperability spec. Outputs from the Montreal meeting: A revised preliminary draft working document with comments will be distributed as soon as possible after the Montreal meeting. Meeting scorecard: more comments than expected, need an e-mail process to progress the work between meeting, Brian Petry with prepare and provide such a process.

Roger Marks asked for a motion to charter the System Requirements Task Group to develop a system requirements document that is binding to the other task groups. No one made the proposed motion.

14:56, Jay Klein, Phy Task Group
Work plan agreed to (Appendix E)
Tentative time frame of 5 plenary meetings and 4 interim meetings to output a document by about September, 00
Call for contributions to be issued on the topics of model comparison procedures, outline, required inputs from system requirements.
September 9, 1999 set as the deadline for contributions.
No objections.

15:03 Jim Mollenauer, MAC Task Group
The task group received two contributions
       802.16mc-99/01, Application Agnostic Bandwidth Allocation, Ray Sanders.
       802.16mc-99/02, DOCSIS 1.1 Overview, Lisa Denney

Call for contributions for next meeting, Mid September
       System requirements should be firmer
       Contributions welcome on both sides of unresolved issues.

Vice Chair Acceptance Speech

15:12 Lou Olsen, acceptance speech and introduction to Vice Chair

15:15 break
15:45, Roger Marks, call to order

ETSI Liaison

15:45, Paul Khanna, ETSI/802.16 Liaison Objectives
Action items: Coop agreement, List of contributions to be shared

Task Group Formation

15:55, Roger Marks, Task Group Formation
System Requirement Task Group to draft a systems requirements document guiding standard 802.16.1
Phy Task Group to draft a physical layer specification for standard 802.16.1
MAC Task Group to draft a media access layer specification for standard 802.16.1
Coexistence Task Group to draft a recommended practice in accordance with PAR 802.16.2

General Task Group Instructions
16:00 Roger Marks, Chair's request from all task groups
establish a time-line
plan for next meeting
call for contributions

Appointments
16:01 Roger Marks, Appointments
Roger appoints Scott Marin as secretary and asked for a motion to affirm Scott as secretary

Motion 5, Jim Mollenauer, 2nd George Fishel, to affirm Scott Marin as secretary

Voice vote, all for, no objection, no abstentions, motion 5 passes

Coexistence Task Group
Leland Langston Chair
Keith Doucet, Vice Chair
Reza Arefi, secretary
Erol Yurtkuran, editor

System Requirements Task Group
George Fishel, Chair
David Jarrett, Vice Chair
Brian Petry, Editor
(open), Secretary

Phy Task Group,
Jay Klein, Chair
John Liebetreu, Vice Chair
open, editor
open, secretary

MAC Task Group
No appointments

Liaison Appointments
Paul Khanna to ETSI
Jose Costa, to JRG8a-9b
Erol Yurtkuran, NSMA

16:10 Hiroshi Kobayashi, status of ARIB

16:16, Roger Marks,
communications with other organization should be approve at an 802 plenary

Ad hoc Patent Policy Committee
Ray Sanders, Chair
Fred Lucas, member
Brian Kiernan, member

Ad hoc IF interface committee
Jack Van der Star, chair
Erol Yurtkuran, member
To prepare a proposal of how they would like to proceed such as a request that the working group vote to develop a study group to develop a PAR.
Stan Reible volunteered for the committee.

802.16 Working group charter

Roger Marks proposed the following wording for a charter, "to develop standards and recommended practices to support the deployment of broadband wireless access systems."

During the discussion, Doug Gray suggested adding "fixed" before the word broadband. The group agreed without objection.

Motion 6 , Brian Kiernan, 2nd George Fishel, to adopt 802.16 charter that states: To develop standards and recommended practices to support the deployment of fixed broadband wireless access systems.

Motion 7, Scott Marin, no second, to amend motion 6 to delete "and recommended practices"

Motion 7 fails

Motion 8, Chris Cant, 2nd Paul Khanna, to amend motion 6 to add "development and" before "deployment

44/0/4 motion 8 passes.

Motion 9, Don Arnstein, 2nd Jay Klien to amend motion 6 to add the words "point-to-multipoint before "fixed"

Roger Marks rules that motion 9 is procedural
25/25/ chair votes against the amendment, motion 9 fails

Chair calls the questions. Motion 6 reads to adopt charter stating "to develop standards and recommended practices to support the development and deployment of fixed broadband wireless access systems."
26+19/2+3/5, 45/5/5 motion 6 passes

16:50

Rules and Organization

Roger Marks stated the following: Preliminary rules based on 802.3
Policy of openness: Reflector submissions, subscriptions, archives.
Templates: No company logo on docs.
Roger Marks asked for rules committee volunteers (no volunteer)

No discussion, Roger Marks declared above as the current rules.

Motion 10, Brian Petry, 2nd Jay Klein, to request cookies at afternoon break.

Voice vote, all for, no objections, motion 10 passes

New Business

Naftali Chayat invited 802.16 to Telavev, Israel for a joint meeting with 802.11 and 802.15 on Jan 10-14, 00. The meeting will be hosted by Breezecom. The approximate cost will be $100 to $125 per night with about $30 per expenses including lunch.
Roger Marks asked for a stawpole for those in favor of accepting Naftali's invitation
13/12/26

Adjourn

Motion 11, , Jim Mollenauer, 2nd _Tom Kolze, to adjourn the meeting

Unanimously passes

Respectfully,

Scott Marin

Secretary, 802.16

4. Appendix A, Opening Agenda, Chairman's Announcements, Chairmans Report, Closing Agenda

4.1 Agenda Reprinted from 802.16-99/03

IEEE 802.16 Working Group on Broadband Wireless Access Session #1

July 6-8, 1999

Montreal, Quebec, Canada

Schedule

(coffee breaks excluded)

Tuesday

08:00-10:00	802.16 Opening Plenary	Duluth Room
10:00-12:00	System Requirements TG	Duluth Room
13:00-18:00	System Requirements TG	Duluth Room
13:00-18:00	Coexistence TG	Bersimis Room
20:00-21:30	Rules Discussion (informal)	Duluth Room

Wednesday

08:00-12:00	System Requirements TG	Duluth Room
08:00-12:00	Coexistence TG	Bersimis Room
13:00-18:00	System Requirements TG	Duluth Room
13:00-18:00	Coexistence TG	Bersimis Room

Thursday

08:00-10:00	PHY Task Group	Duluth Room
10:00-12:00	MAC Task Group	Duluth Room
13:00-17:00	802.16 Closing Plenary	Duluth Room

802 Meetings of Interest

Wednesday

18:30-21:30	Social Reception	Galarie 1

Thursday

19:00-24:00	802 Executive Committee (SEC)	Duluth

Friday

08:00-12:00	802 Closing Plenary	Grand Salon

802.16 Session #1
Agenda - Opening Plenary Meeting
Tuesday, July 6 08:00-10:00
(Rev 7/2)

Opening of Meeting and Session	Marks		08:00
Call to Order	Marks	I	
Presentation of Agenda	Marks	I	
Overall Agenda for the Week			
Opening Plenary			
Closing Plenary			
Approval of Agenda	Marks	V	
Announcements	Marks	I	08:10
Attendance list	Marin	I	
Voting rights	Marks	I	
Registration	Marks	I	
Individual and Anti-Trust	Marks	I	
IEEE Patent Policy	Marks	I	
Logistics: rooms, breaks, lunches, etc.	Marks	I	
Other Announcements	Marks	I	
CD-ROM			
Approval of minutes *deferred to Closing Plenary*			
Austin meeting Mar. 9-11 1999			
Boulder meeting May 10-12, 1999			
Matters arising from the minutes			
Reports			
Chair's Status Report	Marks	I	08:30
Liaison Reports			
ETSI BRAN	Khanna/Klein	I	08:45
Natl. Spectrum Managers Assn.	Yurtkuran	I	08:55
ITU JRG 8A/9B	Costa	I	09:05
Task Group Reports			
Coexistence Task Group	Langston	I	09:20
PHY Task Group	Klein	I	09:35
MAC Task Group	Mollenauer	I	09:40
System Requirements Task Group	Petry	I	09:45

802.16 Session #1
Agenda - Closing Plenary Meeting

Thursday, July 8 13:00-17:00
(Rev 7/2)

Meeting Opening	**Marks**		**13:00**
Call to Order	Marks	I	13:00
Presentation of Agenda	Marks	I	13:00
Determination of Voting Membership	Marin	I	13:03
Approval of Agenda	Marks	V	13:20
Announcements	Marks	I	13:25
Approval of minutes			13:26
Austin meeting Mar. 9-11 1999	Marks	V	
Boulder meeting May 10-12, 1999	Marks	V	
Matters arising from the minutes			
Election of new 802.16 Chair	Marin	V	13:30
Task Groups			**13:45**
Coexistence Task Group	Langston		13:45
Report		I	
Discussion		D	
Approval of PAR		V	
Approval of Working Documents		V	
System Requirements Task Group	Petry		14:15
Report		I	
Discussion		D	
Approval of Working Documents		V	
Break			15:00
PHY Task Group	Klein	I	15:15
Report		I	
Discussion		D	
Approval of Working Documents		V	

4.2 Opening Remarks

List of Announcements
- Attendance list
- Rights of Membership
- Acquiring and Retaining Membership
- Future 802.16 Sessions
- Registration
- Individuality, Legal, and Anti-Trust
- IEEE Patent Policy
- Logistics: rooms, breaks, lunches, etc.
- Other Announcements
  - CD-ROM
  - Organization & Leadership

Acquiring Membership Later
- Thereafter, voting membership in a Working Group is established by participating in the meetings of the Working Group at two out of the last four Plenary sessions.
- Membership starts at the third Plenary session attended by the participant.
- One duly constituted interim Working Group or task group meeting may be substituted for the Working Group meetings at one of the two Plenary Sessions.

Attendance List
- Attendance recorded at each "meeting"
  - 2 meetings/day (morning/afternoon)
- Attendance recorded in parallel meetings
  - voting credit for presence at either
- Attendance is a public record
  - attendance will be reported on web
  - contact info will not be posted

Retaining Membership
- Membership is retained by participating in at least two of the last four Plenary session meetings.
- One duly constituted interim Working Group meeting may be substituted for one of the two Plenary meetings.

Rights of Membership
- Voting
- Motions and Seconding
- Debating
  - Chair may permit observers to debate
- receive a notice of the meeting
- receive a copy of the minutes
- etc.

IEEE and IEEE SA Membership
- Members are encouraged to join IEEE, IEEE Standards Association, and IEEE Computer Society
- Such membership is not required for Working Group membership or voting
- Membership in IEEE Standards Association [IEEE or CS + $10] required to participate in "Sponsor Ballot" (review drafts produced by 802.16)
- Complete form to vote in 802 ballots

Acquiring Membership Now
- "All persons participating in the initial meeting of the Working Group become voting members the Working Group."
- participation means presence in at least 75% of all meetings in a session
- 802.14 asked for 4/6; did not agree
- No WG votes until Closing Plenary
- those who were present in at least 4 of the 5 previous meetings (Tuesday-Thursday) may vote in Closing Plenary

Future 802.16 Sessions
802 Plenary Sessions
- November 8-12
  - Hyatt Regency Kauai, Kauai, HI
  - 802 Chair offers letter of explanation

Interim Sessions
- August 5-6: Denver, CO
  - hosted by 1999 IEEE Radio and Wireless Conference (RAWCON'99): August 1-4
- late September Session
  - dates and location to be determined

Registration

- No voting rights without registration ($300), or if you have back debts
- Pre-registration is $250
- Beginning with the November 1999 Plenary, you must pay fee before the deadline to pre-register
- $50 no-show fee; $25 to cancel after final Friday afternoon
- 802 suggests that you leave your credit card info on file for future email registration

Individuality

- **In IEEE standards meetings, membership is by individual**
  - **you do not represent a company or organization**
- **Membership belongs to the individual, not an organization, and may not be transferred.**

Legal and Anti-Trust

- **Any discussions that relate to the validity or cost of patent use should be avoided.**
- **Any discussions or any material relating to an ongoing litigation shall be avoided.**
- **Any discussions of pricing or issues that would violate US antitrust laws shall be avoided.**

IEEE Patent Policy

- **The patent policy is set forth in clause 5 of the IEEE Standards Board Bylaws**
- **"IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard. This assurance shall be provided without coercion and prior to approval of the standard (or reaffirmation when a patent becomes known after initial approval of the standard)."**

IEEE Patent Policy (cont.)

This assurance shall be a letter that is in the form of either
- a) **A general disclaimer to the effect that the patentee will not enforce any of its present or future patent(s) whose use would be required to implement the proposed IEEE standard against any person or entity using the patent(s) to comply with the standard or**
- b) **A statement that a license will be made available to all applicants without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination**

IEEE Patent Policy (cont.)

Clause 6.3 of the IEEE Standards Operations Manual

Through the Working Group, the sponsor chair shall request that known patent holders submit a statement either that the patent does not apply to the standard or that licenses will be made available without compensation or under reasonable rates, terms, and conditions. This assurance shall be obtained without coercion and submitted to the IEEE at the earliest practical time prior to the approval of an IEEE standard. The IEEE encourages early disclosure to the working group of patent information that might be relevant to the standard.

Logistics

- **Rooms**
  - **Duluth**: (Primary room; has data projector)
  - **Bersimis** (Coexistence Task Group only; data projector requested)
  - Available to 802.16 all week
- **Copying**
  - Limited facilities
  - Paper copies discouraged
  - No budget for copying
- **Flash ROM for document distribution**

Logistics (cont.)

- **Continental Breakfast and Breaks**
  - Registrants only
- **Lunch**
  - On your own
- **802 Reception**
  - Wednesday, 6:30-9:30 pm
  - Galarie 1
  - All registrants invited
  - Lots of good food
  - Please attend

Other Announcements

- **Members of 802 Working Groups are entitled to receive a CD-ROM of all 802 standards for limited personal use.**
  - Discs will be distributed this week to new voting members of 802.16 (estimated)
  - Available starting Wednesday 2 pm (noon?)
  - In SEC/Registration Office (see reg. table)

Group Leadership Positions

- **802.16 Chair**
  - **Election at Closing Plenary**
  - **Typical Appointments:**
    - **Parliamentarian**
    - **Secretary**
    - **Liaisons**
      - **ETSI BRAN**
      - **ITU**
      - **NSMA**
      - **ARIB**
    - **Task Group Chairs**
      - **Vice Chairs, Secretaries, Editors**

802.16 Chair Election

- Working Group Chairs and Vice Chairs shall be elected by the Working Group and confirmed by the LMSC Executive Committee. Terms shall end at the end of the first Plenary session of the next even numbered year.
- Initial appointments... made by the Chair of the LMSC, and shall be valid until the end of the next Plenary session.
- Roger Marks is 802.16 Chair through the end of 802 Plenary Meeting, scheduled to end at noon on Friday July 9
- Election to be held during Closing Plenary
- Roger Marks will be a candidate for election
- 802.16 Secretary (Scott Marin) will conduct election.
- If you intend to run, please notify Mr. Marin no later than Tuesday
  - this information will aid in scheduling the Closing Plenary

Informal Leadership Meeting

- Held Monday 3-6 pm. Volunteers:
  - Roger Marks-802.16 (Chair)
  - Scott Marin-802.16 (Secretary)
  - Brian Petry-Sys Req (Chair or Editor)
  - Phil Guillemette-SysReq (Chair) or MAC (Chair)
  - Ted Boone-MAC (Chair/Editor/Sec)
  - Jay Klein-PHY (Chair)
  - Philip Kwan-PHY or Coexistence
  - C. Y. Chang-MAC (Vice-Chair)
  - Baya Hatim-Sys Req (Chair)
  - Allan Lee-Coexistence (Chair or Editor)
  - Tony Mascioli-SysReq (Chair) or PHY (Chair)
  - Leland Langston-Coexistence (Chair)
  - George Fishel: SysReq (Chair or Editor)
  - Gene Robinson-SysReq
  - Erol Yurtkuran-PHY or Coexistence
  - Jack van der Star-IF interface
  - Jim Mollenauer

4.3 Chairman's Report

IEEE 802.16
Working Group on
Broadband Wireless Access
(BWA)
Chair's Status Report
July 6, 1999
Montreal, Quebec, Canada
Roger B. Marks

BWA Industry Issues
- Major changes since March
- Important companies changed hands
- Big interest by financial community
- Still no "private" competition for 802.16
- We are "wanted"
  - Two trade associations want to be associated with us
  - Commercial conferences want us to co-locate meetings
  - Many requests to give talks

Followup to March Meeting: PAR
- 54 people at second (and final) Study Group Meeting in Austin (no deadbeats)
- Submitted Interoperability PAR
  - Approved by 802 (99/03/11)
  - Approved by IEEE (99/03/18)
  - Standard due to RevCom on 2001/01/31

Followup to March Meeting: WG
- Working Group 802.16 created 99/03/11
- Interim Chair thru 7/9/99: Roger Marks
- Publicity
  - Press Release through IEEE Standards
  - Much other publicity
    - inc. "802 Perspectives" in *IEEE Network*
    - 4 IEEE MTT Distinguished Lectures
- SEC requested charter for 802.16
  - On agenda for this week

802 Web Site
- Subset of 802 Site at IEEE
- Includes:
  - BWA Study Group, Final Report
  - Detailed meeting info (old and upcoming)
  - Document Submission Template
  - Task Group Areas
    - Call for Contributions; Contribution Index
  - Liaison Areas
  - ...
- Password-protected directory available
  - Not currently used

802.16 Email Reflector
  - For 802.16 Official Business
  - Not confidential
    - Open submission policy
    - Open subscription policy
    - Publicly-available archives on web site
  - Asked IEEE to turn off "who"
    - Learned how; did it at midnight
  - 101 messages so far

Contribution-Driven Process
- Each TG issues "Call for Contributions"
  - Specific issues for next meeting
  - Includes deadlines
  - Widely publicized (inc. outside the WG)
- Since March Plenary:
  - Sys Req: 24 contributions
    - Editor posted draft Sys Req document
  - Coexistence: 10 contributions
  - PHY: 1 contribution (outline)
  - MAC: 2 contributions (1 DOCSIS, 1 new)

802.16 Meeting #0
- Boulder, May 10-12
- 55 people
- Not the "first Working Group Meeting"
- Meeting of 2 Task Groups
  - Coexistence
    - Wrote PAR for SEC approval this week
  - System Requirements
    - Worked on document
    - To define requirements for MAC & PHY
- Voted (tentatively) for open policy

802.16 Meeting #1 - July 6-8

- **Registration as of 10 am Monday:**
  - **104 primary**
  - **6 secondary**
  - **7 tertiary**

802.16 Meeting #1 - July 6-8

- Detailed agenda & voting rules distributed
- "Voting Rights"
  - attend 5/6 meetings (>75%)
- Opening Plenary Tuesday (no voting)
- Closing Plenary Thursday
- Task Groups
- Informal leadership meeting Mon. 3-6 pm
- Informal rules group Tuesday 8-9:30 pm

802.16 Meeting #2 - August 5-6

- Denver, Colorado
- Finish the System Requirements Document?
- Begin MAC and PHY seriously
- After 1999 IEEE Radio and Wireless Conference (RAWCON'99)

IEEE RAWCON'99

- **http://rawcon.org**
- **Denver, Colorado, August 1-4**
- **Roger Marks, General Chair**
- **75 Technical Talks**
- **Broadband Wireless Access Operator's Forum**
  - **CTO, Formus Communications, Inc.**
  - **Director, Technology Development, Teligent, Inc.**
  - **Senior Director, Network Architecture, WinStar**

RAWCON'99 Panel Session

- **Wireless Standardization: Players, Stakes, and Opportunities**
- Tuesday, August 3
- Panelists:
  - 802.11 Editor
  - 802.15 Chair
  - 802.16 Chair
  - ITU-R JRG 8A/9B Co-Chair
  - Chair, T1P1
  - Chair, UMTS Forum Operator's Group

RAWCON'99 Workshop

- **Wireless Personal Area Networks: An Overview**
  - Monday, August 2

  - Organizer and Chair: Dr. Robert F. Heile, Chair, 802.15

  - Similar to WPAN tutorial at March 802 Plenary (4 hours long)

Liaisons

- ETSI BRAN
  - Paul Khanna
- ITU-R JRG 8A-9B (Wireless Access Systems)
  - José Costa (8A-9B Co-Chair)
  - Meeting July 12-16, Ottawa
- National Spectrum Manager's Assn.
  - Erol Yurtkuran
- ARIB
  - possible translation of Japanese docs

SEC Issue: Meeting Finances

- IEEE Microwave Theory and Techniques Society (MTT) co-sponsors 802.16 PARs
  - Cosponsors WG too?
- MTT guaranteed hotel contract for Meeting #0
- MTT agreed to subsidize 802.16 mtgs.
- Meeting #0 was cheap ($50 reg fee)
- Still ran $350 surplus
- MTT agreed to hold surplus for 802.16
- We will continue this arrangement
  - Will aim for $350 loss at next meeting

SEC Issue: PAR Numbering

- Conventional
  - 802.16 is the Working Group
  - 802.16 is the first PAR
  - 802.16a is the second PAR
- This is confusing
  - Scope of WG exceeds that of first PAR
- One version:
  - 802.16 is the Working Group
  - 802.16a is 1st PAR ["a" = "air interface"]
  - 802.16c is 2nd PAR ["c" = "coexistence"]
- SEC meeting Tuesday 4-6 pm

SEC Issue: ITU Relationship

- 802.16 will internationalize via ITU rather than ISO/IEC
- Primary ITU Members are national governments
- ITU has relationships with certain Standards Developing Organizations
- IEEE or 802 should be one of these
- Need to work on this

802.14 Issue

- Some members would like to work on 802.16

- Can they attend 4/6 meetings this week and get voting rights

  - No

- Can we do a joint session on DOCSIS 1.1?

  - Didn't work out; needed more advance notice

802.1

- Basic 802 architecture

- Invited us to send a representative
  - Wednesday 8:30-10 am

- I appoint Jim Mollenauer

Chairman's Presentations on 802.16

- European Institute Roundtable, 5/6/99
  - Talked on "Cooperative International Wireless Standardization"
- Panelists:
  - Dr. Bernd Eylert, Chair, UMTS Forum
  - Susan Ness, Commissioner, U.S. Federal Communications Comm.
  - David Hendon, Chairman of the Board, ETSI
  - Mark MacGann, VP of Strategic Affairs, SkyBridge
  - Roger Marks, NIST
  - Lawrence Williams, VP, Teledesic
  - Paola Tonelli, Chair, Operator's Group, UMTS Forum

Chairman's Meetings on 802.16

- April 7: Dale Hatfield
  - Chief, Office of Engineering and Technology
  - U.S. Federal Communications Commission
  - In his office
- discussed BWA standardization
- open to hearing industry concerns
- FCC is intent on removing regulatory barriers, giving wireless an equal opportunity in broadband access
- confident that the FCC will not mandate BWA interoperability standards
- No need to facilitate standardization due to 802.16

Chairman's Presentations on 802.16

- IEEE MTT Distinguished Microwave Lecturer
  - IEEE Microwave Theory and Techniques Soc (MTT)
  - "The IEEE 802.16 Working Group on Broadband Wireless Access Standards"
  - April 22, 1999: Denver/Boulder (IEEE MTT/AP)
  - April 27, 1999: Pikes Peak (IEEE ComSoc)
  - May 25, 1999: Baltimore/Washington (MTT)
- Other Conferences
  - IEEE Emerging Technology Symposium on Wireless Communications and System
    - Richardson, Texas, April 12, 1999
  - "LMDS and Fixed Broadband Wireless Access"
    - Arlington, VA, May 24-25, 1999

Chairman's Publications on 802.16

- "The IEEE 802.16 Working Group on Broadband Wireless Access"
  - IEEE Network, March-April, 1999, p. 4.

- Letter by Roger Marks, writing as Chair of the 802 Study Group on Broadband Wireless Access
  - Inter@ctive Week, March 15, 1999, p. 23.
  - Commented on the magazine's comparison of DSL and cable modem technologies, adding "Of course, we shouldn't forget the alternative of broadband wireless access, which we expect to be a significant competitor, especially once the IEEE 802 Study Group on Broadband Wireless Access (nwest.nist.gov) has settled on interface standards."

4.4 Closing Agenda

802.16 Session #1
Agenda - Closing Plenary Meeting
Thursday, July 8 13:00 -17:00
(Rev 7/8)

Meeting Opening	Marks		13:00
Call to Order	Marks	I	13:00
Presentation of Agenda	Marks	I	13:05
Approval of Agenda	Marks	V	13:08
Announcement of Voting Membership	Marin	I	13:10
Membership by Chair's Discretion	Marks	I	13:18
Announcements	Marks	I	13:20
Approval of minutes			13:25
Austin meeting Mar. 9 -11 1999	Marks	V	
Boulder meeting May 10 -12, 1999	Marks	V	
Matters arising from the minutes			
Election of new 802.16 Chair	Marin	D,V	13:30
Election of 802.16 Vice -Chair	Marks	D,V	13:40
Future Sessions	Marks	I,D	13:45

Task Groups			13:55
Coexistence Task Group	Langston		13:55
Report		I	
Discussion		D	
Approval of PAR		V	
System Requirements Task Group	Petry		14:15
Report		I	
Discussion		D	
Approval of Working Documents		V	
PHY Task Group	Klein	I	14:45
Report		I	
Discussion		D	
Approval of Working Documents		V	
MAC Task Group	Mollenauer	I	15:00
Report		I	
Discussion		D	
Approval of Working Documents		V	

Break			15:15
BRAN Liaison	Khanna		15:40
Committee Formation	Marks	D	15:45
Charge to Committees	Marks	D	16:00
Appointments		D	16:10
Working Group Charter	Marks	D,V	16:20
Rules and Organization	Marks	D,V	16:30
New Business			16:50
Adjournment of Meeting and Session	Marks	V	17:00

I=Information   D=Discussion   V=Vote

4.5 Closing Plenary

**IEEE 802.16
Working Group on
Broadband Wireless Access
(BWA)**

**Meeting #1
Closing Plenary**
July 8, 1999
Montreal, Quebec, Canada

Meeting Opening
• **Call to Order**
• **Presentation of Agenda**
• **Approval of Agenda**

Announcement of Voting Members

• **Participants in 4 of the 5 previous meetings at this session (July 6-8, 1999) who attend this Closing Plenary Meeting**
  − **are eligible to vote in the Closing Plenary**
  − **become Members of 802.16, subject to review of 802 registration**

• **802.16 Secretary will announce eligible voters**

Membership: Chair's Discretion
• 802: "Membership may be declared at the discretion of the WG Chair (for contributors by correspondence or other significant contributions to the WG)."
• Chair offers membership to those who attended 4 of 6 meetings in Session #1 AND participated in at least two Sessions prior to Session #1 in 1999.
• Membership granted to:
  − **Jeff Foerster**
  − **Doug Gray**
  − **Rami Hadar**
  − **Doug Sward**
• Additional requests to be made in writing

Retaining Membership

- Membership is retained by participating in at least two of the last four Working Group sessions held as part of 802 Plenaries.
- One duly constituted interim Working Group session or Task Group session after Session #1 may be substituted
- Membership lists updated only at 802 Plenary sessions
- Subject to later interpretation

Acquiring Membership Later

- Voting membership is established by participating in the sessions of the Working Group at two out of the last four sessions held with 802 Plenaries.
- Membership begins at start of third session held at 802 Plenary.
- One duly constituted interim Working Group or task group meeting may be substituted for the Working Group meetings at one of the two Plenary Sessions.
- Subject to later interpretation.

Announcements: Individuality

- In IEEE standards meetings, membership is by individual
  - you do not represent a company or organization
- Membership belongs to the individual, not an organization, and may not be transferred.

Announcements: Legal

- IEEE Patent Policy applies
- Any discussions that relate to the validity or cost of patent use should be avoided.
- Any discussions or any material relating to an ongoing litigation shall be avoided.
- Any discussions of pricing or issues that would violate US antitrust laws shall be avoided.

Announcements: CD-ROM

- Members of 802 .16 are entitled to receive a CD-ROM of all 802 standards for limited personal use

- Still time to pick up at Registration Desk

Announcements: Ballot Pool

- To ballot on draft standards of any 802 Working Group
  - you choose the group(s)

- You must belong to IEEE Standards Association

- Application form at Registration Desk
  - submit to IEEE
- If you are only interested in 802.16, you don't need to submit form now

Approval of Minutes

- Austin meeting (9-11 March 1999)
  - Document number 802BWA-99_002_d2

- Boulder meeting (10-12 May 1999)
  - Document number 802.16-99/02_d

- Matters arising from the minutes

802 SEC Issue: PAR Numbering

- Conventional numbering scheme
  - 802.16 is the Working Group
  - 802.16 is the first PAR
  - 802.16a is the second PAR
  - assumes that a working group does only 1 standard
- 802 Chair & IEEE staff have approved a new scheme for us (>1 standard per WG):
  - 802.16 = Working Group
  - 802.16.1 = air interface project
  - 802.16.2 = coexistence project
    - Or vice versa
- Without objection, I will propose to SEC

802 SEC Issue: Patent Policy

- IEEE policy
  - WG Chair asks for relevant patent info
  - WG Chair replies with request for "Letter of Assurance" regarding licensing
- Problems
  - Flaws in sample letters
  - Companies not able to judge relevance of IPR
    - Don't know full IPR portfolio
    - Don't know what is included in standard
  - Each "Letter of Assurance" is different
  - Companies may fail to disclose

Plan on Patent Policy

- 802.16 Chair met with 802 Chair and IEEE staff
  - Expressed concern with IEEE Patent policy
- 802 Chair invited 802.16 to revise procedures, with IEEE approval (request to IEEE Patent Committee in September)
- Kernel of possible plan:
  - Each contributed document must include reference to standard "letter of assurance" on file with IEEE
- Set up ad hoc committee to propose plan

Election of new 802.16 Chair

- LMSC Working Group Chairs and Vice Chairs shall be elected by the Working Group and confirmed by the LMSC Executive Committee. Terms shall end at the end of the first Plenary session of the next even numbered year.
- Manager for Chair Election:
  - Scott Marin, 802.16 Secretary

Election of 802.16 Vice-Chair

- Chair's Nomination
  - Lou Olsen
- Nominations from the Floor

Next Session

- *System Requirements Task Group*
- 802.16 Session #2: 4-6 August, 1999
  - Begins 1 pm, Wednesday, 4 August
  - Ends noon, Friday, 6 August
- Denver, Colorado
- Denver Marriott Southeast
- Host: Roger Marks
- IEEE MTT Society: financial backing

Session #3

- Coexistence, PHY, MAC Task Groups
- 802.16 Session #3:
  - 15-17 September, 1999
  - Begins 1 pm, Wednesday, 15 September
  - Ends noon, Friday, 17 September
- Boulder, Colorado
- Regal Harvest House
- Host: Roger Marks
- IEEE MTT Society: financial backing

Future 802.16 Sessions

802 Plenary Sessions
- 8-12 November, 1999
  - Hyatt Regency Kauai, Kauai, HI, USA
  - 1-800-742-2353 (call ASAP)
  - 802 Chair offers letter of explanation
  - Begin at 1 pm on Monday, 8 November
- 6-10 March, 2000
  - Hyatt Regency Albuquerque, NM, USA

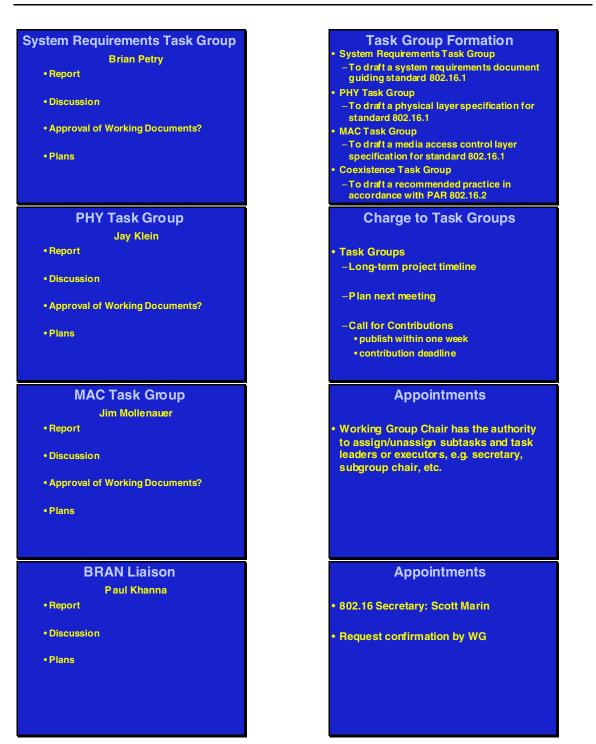**Interim**
- January, 2000

Coexistence Task Group

Leland Langston

- Report
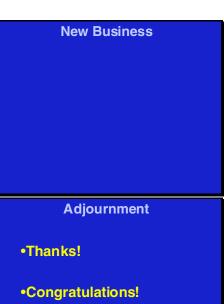- Discussion
- Motion: To request 802 SEC approval for IEEE 802.16cc/D2-99/03 ("Draft Coexistence PAR Adopted on May 11, 1999").
- Plans

System Requirements Task Group

Brian Petry

- Report

- Discussion

- Approval of Working Documents?

- Plans

Task Group Formation

- **System Requirements Task Group**
  - To draft a system requirements document guiding standard 802.16.1
- **PHY Task Group**
  - To draft a physical layer specification for standard 802.16.1
- **MAC Task Group**
  - To draft a media access control layer specification for standard 802.16.1
- **Coexistence Task Group**
  - To draft a recommended practice in accordance with PAR 802.16.2

PHY Task Group

Jay Klein

- Report

- Discussion

- Approval of Working Documents?

- Plans

Charge to Task Groups

- **Task Groups**
  - Long-term project timeline

  - Plan next meeting

  - Call for Contributions
    - publish within one week
    - contribution deadline

MAC Task Group

Jim Mollenauer

- Report

- Discussion

- Approval of Working Documents?

- Plans

Appointments

- **Working Group Chair has the authority to assign/unassign subtasks and task leaders or executors, e.g. secretary, subgroup chair, etc.**

BRAN Liaison

Paul Khanna

- Report

- Discussion

- Plans

Appointments

- **802.16 Secretary: Scott Marin**

- **Request confirmation by WG**

Appointments

- **Coexistence Task Group**

- **Interim Leadership**
  - **Leland Langston, Chair**
  - **Keith Doucet, Vice Chair**
  - **Reza Arefi,Secretary**
  - **Erol Yurtkuran, Editor**

Liaison Appointments

- **ETSI BRAN Hiperaccess**
  - **Paul Khanna**
- **ITU-R JRG 8A/9B**
  - **José Costa**
- **Natl. Spectrum Manager's Association**
  - **Erol Yurtkuran**
- **Association of Radio Industries and Businesses (ARIB)**
  - (**Hiroshi Kobayashi to discuss**)
- **Liaison communications must be pre-approved by Working Group**

Appointments

- **System Requirements Task Group**

- **Interim Leadership**
  - **George Fishel, Chair**
  - **David Jarrett, Vice Chair**
  - **Brian Petry, Editor**
  - **(Secretary)**

Ad Hoc Committees

- **Ad Hoc Patent Policy Committee**
  - Ray Sanders, Chair
  - Fred Lucas,Member
  - Brian Keirnan, Member

- **Ad Hoc IF Interface Committee**
  - Jack van der Star, Chair
  - Erol Yurtkuran, Member
  - Stan Reible, Member

Appointments

- **PHY Task Group**

- **Interim Leadership**
  - **Jay Klein, Chair**
  - **John Liebetreu, Vice Chair**
  - **(Editor)**
  - **(Secretary)**

802.16 Working Group Charter

- **Proposed Draft:**

  - **To develop standards and recommended practices to support the deployment of broadband wireless access systems.**

- **Discussion**

- **Adoption**

Appointments

- **MAC Task Group**

- **Interim Leadership**
  - **No appointments at this time**

Rules and Organization

- **Preliminary Rules**
  - **Based on 803.3 Rules**
- **"Policy of openness"**
  - **Reflector submission, subscription, archives**
  - **Web**
- **Templates**
  - **No company logos**
    - **Document submissions**
    - **Presentations?**
- **Rules Committee**

New Business

Adjournment

- **Thanks!**

- **Congratulations!**

Appendix B, <u>Attendance List and Voting Membership</u>

At total of 130 people attended 1 or more sessions of the 6 sessions at the Montreal meeting.

4.6 Voting members for Montreal Session 6

Through noon on Thursday, 7/8/99, the session attendance record showed the following:

Attendance Record 6 ,7 , 8am,July, 99, Montreal Meeting
Voter for 6th session if attended 4 or more sessions

Five Sessions

Ackley,Sherman
Alagar,Arnold
Ali,Tariq
Arefi,Reza
Arnstein,Donald
Arrakoski,Jori
Arunachalam,Arun
Baldo,Paolo
Biagini,William
Bogan,Zev
Boone,Ted
Bouchard,Michael
Boucher,Luc
Cant,Christopher
Chan,Rebecca
Chang,Chih-Yuan
Chayer,Rémi
Child,Skyler
Chitayat,Fred
Condie,Mary
Cornelius,James
Costa,José
Currivan,Bruce
Denney,Lisa
Doucet,Keith
Duhamel,Robert
Eklund,Carl
Falconer,David
Fishel,George
Frigui,Imed
Fulton,Thomas
Gagnon,Martin
Garrison,G.
Germon,Richard
Goetz,Gregory
Goldhammer,Marianna
Guillemette,Phil
Gulliford,Dan
Hatim,Baya
Jarrett,David
Jevremovic,Vladan
Khanna,Amarpal
Kiernan,Brian
Klein,Allan
Klein,Jay
Kwan,Philip
Lam,Ignatius
Langston,J. Leland
LaRocca,Peter

Lee,Allan
Le-Ngoc,Tho
Levin,Gregg
Liebetreu,John
Lu,Willie
Lucas,Fred
Maghera,Mohan
Marin,J.
Marks,Roger
Mascioli,Antonio
Mertsching,Marcus
Mollenauer,James
Murakami,Keishi
Myers,William
Olsen,Louis
Palmer,David
Parikh,G.
Petry,Brian
Quinn,Patrick
Ran,Moshe
Reible,Stanley
Robidoux,Michel
Robinson,Gene
Rosenblatt,Jeff
Sanders,Ray
Sandler,Howard
Schafer,David
Shahar,Menashe
Shattil,Steve
Shirali,Chet
Solomon,David
Stambaugh,Karl
St-Onge,Marc
Struhsaker,Paul
Taylor,W.
Van der Star,Jack
van Waes,Nico
Vigneron,François
Ward,Robert
Willy,Roy
Wu,Kuang-Tsan
Yee,Jung
Yurtkuran,Erol
Zeino,Hassan
Zhang,Genzao

Four Sessions
Chayat,Naftali
Copeland,Greg
Durand,Roger

Hadar,Rami
Izadpanah,Hossein
Kolze,Thomas
Lewis,Barry
Moghe,Sanjay
Norris,Randi
Ruppel,Clemens
Tzerefos,Polychronis
Zebarth,Joseph

Three Sessions

Amer,Khaled
Foerster, Jeff
Gray, Doug
Langston,Daun
Martin, Andre
Min,Jonathan
Moreno,Alejandro
Sward, Doug
Unal,Fatih

Two Sessions

Bernues,Francisco
Gochi,Motohiro
Morikura,Masahiro
Zegelin,Chris

One Session

Cardinal, Francois
Choi,Jangjin
Eng,John
Hatamian,Mehdi
Kobayashi, Hiroshi
Kraz, Kevin
Monk,Anton
Ribner, David
Rofheart, Martin
Schultz, Ken
Siller,Curtis

4.7 Charter Voting Members of 802.16

The following 106 people attended 5 or 6 of the 6 sessions or were granted voting status by the 802.16 Chairman as noted in the minutes.

Ackley,Sherman	Germon,Richard	Olsen,Louis
Alagar,Arnold	Goldhammer,Marianna	Palmer,David
Ali,Tariq	Gray, Doug	Parikh,G.
Arefi,Reza	Guillemette,Phil	Petry,Brian
Arnstein,Donald	Gulliford,Dan	Quinn,Patrick
Arrakoski,Jori	Hadar,Rami	Ran,Moshe
Arunachalam,Arun	Hatim,Baya	Reible,Stanley
Baldo,Paolo	Izadpanah,Hossein	Robidoux,Michel
Biagini,William	Jarrett,David	Robinson,Gene
Bogan,Zev	Jevremovic,Vladan	Rosenblatt,Jeff
Boone,Ted	Khanna,Amarpal	Ruppel,Clemens
Bouchard,Michael	Kiernan,Brian	Sanders,Ray
Boucher,Luc	Klein,Allan	Sandler,Howard
Cant,Christopher	Klein,Jay	Schafer,David
Chan,Rebecca	Kolze,Thomas	Shahar,Menashe
Chang,Chih-Yuan	Kwan,Philip	Shattil,Steve
Chayat,Naftali	Lam,Ignatius	Shirali,Chet
Chayer,Rémi	Langston,J. Leland	Solomon,David
Child,Skyler	LaRocca,Peter	Stambaugh,Karl
Chitayat,Fred	Lee,Allan	St-Onge,Marc
Condie,Mary	Le-Ngoc,Tho	Struhsaker,Paul
Copeland,Greg	Levin,Gregg	Sward, Doug
Cornelius,James	Lewis,Barry	Taylor,W.
Costa,José	Liebetreu,John	Tzerefos,Polychronis
Currivan,Bruce	Lu,Willie	Van der Star,Jack
Denney,Lisa	Lucas,Fred	van Waes,Nico
Doucet,Keith	Maghera,Mohan	Vigneron,François
Duhamel,Robert	Marin,J.	Ward,Robert
Eklund,Carl	Marks,Roger	Willy,Roy
Falconer,David	Mascioli,Antonio	Wu,Kuang-Tsan
Fishel,George	Mertsching,Marcus	Yee,Jung
Foerster, Jeff	Moghe,Sanjay	Yurtkuran,Erol
Frigui,Imed	Mollenauer,James	Zeino,Hassan
Fulton,Thomas	Murakami,Keishi	Zhang,Genzao
Gagnon,Martin	Myers,William	
Garrison,G.	Norris,Randi	

The following 24 people attended from 1 to 4 of the 6 sessions and did not qualify as voting members.

Amer,Khaled	Ribner, David
Bernues,Francisco	Rofheart, Martin
Cardinal, Francois	Schultz, Ken
Choi,Jangjin	Siller,Curtis
Durand,Roger	Unal,Fatih
Eng,John	Zebarth,Joseph
Gochi,Motohiro	Zegelin,Chris
Goetz,Gregory	
Hatamian,Mehdi	
Kobayashi, Hiroshi	
Karcz, Kevin	
Langston,Daun	
Martin, Andre	
Min,Jonathan	
Monk,Anton	
Moreno,Alejandro	
Morikura,Masahiro	

5. Appendix C, System Requirements Task Group Minutes

10:30 7/6/99, Brian Petry, Chair, Scott Marin Secretary

Brian introduced agenda and contributions

Brian asked for additional contributions or presentations. None came forward.

Brian asked for approval of the agenda. No objections.

Brian presented 802.16s0-00/1, 802.16 Broadband Wireless Access System Requirements.

11:45, Ray Sanders, Presented overview of document 802.16mc-00/01.

11:50, recess for lunch

13:00 Robert Duhamed, presentation of 802.16sc-99/14,

13:50 Co-existence group departed

13:50 Jung Yee, presentation of 802.16sc-99/14.

13:54,Hossan Izadpanah, presentation of 802.16sc-99/10.

14:00, Willie Lu, Presentation of 802sc-99/15.

14:45 break

15:15 Brian Petry, discussion on process. Several folks expressed concern for opportunity to resolve issues.

15:20 David Jarrett, Presentation of 802.16sc-00/18.

15:55 Marianna Goldhammer, Presentation of 802.16sc-00/16.

16:12 George Fishel, Presentation of 802.16sc-99/22.

16:30, Scott Marin, Presentation of 802.16sc-99/20.

16:45, Scott Marin, Presentation of 802.16sc-99/19.

17:05, Bill Myers, Presentation of 802.16sc-99/21.

17:20, Jim Mollenauer, Presentation of 802.16sc-99/24.

17:50, recess for evening

7/7/99
08:30 Brian Petry, chair, Scott Marin Secretary, call

Q, Gene Robinson, Menachi, Brain, Naftali, Fischel, Paul

Discussion, Should system requirements document be binding and what is the scope of document?

09:10

Motion c1, Paul Struhsaker, 2nd Brain Kiernan The system requirements task group shall develop a system requirements document that is binding to 802.16 standards, upon approval of the 802.16 working group.

Q: George, Imed, Sanjy, John, Don, Naftali, Scott, Robert

Motion c2, Question of Called by Nafti, 2nd George Fishel,

22+28/4+3/3+5, 50/7/8 motion c2 passes

26+28/4+3/1+2, 44/7/3 motion c1 passes.

It is the intent of the group to develop a system requirements documents that is 802.16 standards.

Recommend at the 802.16 working group (plenary) that forthcoming system requirements document approved by the system requirements task group shall be binding to the 802.16 standards.

Comments of consensus process,
Q. George Fishel, Sherman , Nafalti Chayat, Arun, Brian , Gene Robinson, Roger Marks, Scott Marin, Marriana Goldhammer, Naftali Chayat.

9:55 Brian tabled discussion on process.

10:05 Brian opened discussion on process for going through the document.
Q. Gene Robinson, Manachi, Willy, Brian, George Fishel, Imed, Robert Duhamed, Marriana Goldhammer, Tho, Scott Marin, Bill Myers, David Jarrett,

10:12 break until 10:45.
10:55 Brain call to order.

Brian states process as 10 minute per each contributor to summarise their specific issues.

11:05 Robert Duhamel. Comments
11:10 David Jarrett,,comments
11:20 Marriana Goldhammer, comments
11:35 George, comments.
11:40, Scott Marin Comments
11:45, Bill Myers, Comments
11:55, Jim Mollenauer, Comments

12:05 break for lunch until 13:15.
13:20 Brian, call to order
The chair states that we'll continue 10 min per contributor and after break, open floor for general comments.

13:35, Imed Frigui, general comments
13:56, Gene Robinson, general comments
13:08, Chayat, general comments.
!4:12, Scott Marin, general comments
14:26, Shahar, general comments
14:25, Chris Cant, general comments
14:45, Genzao Zhang, general comments.
14:50, Jim Mollenauer, general comments,

14:59 break until
15:20, Brian Petry, call to order
15:20, Ray Sanders, general comments
15:30, Brian Petry,

Motion c3, John Liebetreu, 2nd Jim Mollenauer, document 802.16s0-99/1 as the preliminary working document for the 802.16 systems requirements task group.

Discussion points (document is a starting point not to preclude future changes or additional sections). The only thing we're closing the door on is throwing out the document altogether.

Motion c4, Jim Mullenauer, to call the question

No objections

23+25/2+2/3+3, 48/4/6 motion c3 carries.

15:45 Brian opens discussion about general issues.
Q: Gene Robinson, Chris Gant, xxx, David

15:55 Brian Petry, Debate to Eliminate STM and ATM in favour of IP
Q, Martin, Sherman, Yuri, Willy Lee, Scott, Paul, David Jarrett, George, Gene, Manachi, Jori, Chet, ~~Jim, CY, Imed~~

16:10 Brian Petry, Debate what does it mean to be "interoperable"
Q, Chris, Marrianna, Paul, Ray, Jim

16:24 Brian Petry, Debate on "why are we here".
Q Yori, Brian, Willy, David, Mohan, Roger, Gene, Jack, David,

16:36 Brian Petry, debate "what is a BWA network"
Q: gene, brian, scott, brian, ray, imed, sherman, jose, brian

16:55 Brian Petry, item by item discussion of proposed changes to working document

To add words "Preliminary draft working document for" to beginning of title.
Voice vote, no objections

To add [point to multipoint] to scope paragraph
Voice vote, No objections.

[Scott Marin to add sentence defining system as multi-hub, to Scott Marin to add a figure what is a multi-hub, multi-sector broadband system, and to move statement on system definition to the appropriate point in the document.

To change Figure 1.1 to allow other protocols
no objections

To delete which have high (broadband, >~2 Mbps) throughput requirements]
some objections, issue un resolved]

[delete cost ….
No objections

Replace "Compete to focus" in BWA systems are not meant .
No objections

802.16 systems are fixed (also nomadic), not mobile
not resolved.

Motion c5: Jim Mollenauer, 2nd Brian Kiernan, move that we adopt the version as edited as the updated working document.

48/0/0 motion c5 carriers

18:10

Motion c6, Brian Kiernan, 2nd Martin Gagnon, to adjourn.

No objections.

6. Appendix D, Coexistence Task Group

6.1 Meeting Minutes

We had 30 people participate in the coexistence task group meeting. (The list of attendees is attached.) Five contributions were presented. The presentations were:

Lou Olsen   802.16-99/06

G. Jack Garrison   802.16-99/07

Howard Sandler   802.16-99/05

G. Jack Garrison   802.16-99/08

Duglas Sward   802.16-99/10

Break

Discussed Practice Content

Developed Game Plan for Wednesday

A draft topical outline for the proposed coexistence practice was developed (attached). The coexistence group voted to have an interim meeting in Bolder, CO in September with a target date(s) of Sept 16-17. The draft coexistence PAR received no further comments, and the 802.16 Plenary group voted to submit the PAR to SEC for final approval. Jack Van der Star will lead a task group to investigate coexistence issues related to indoor/outdoor unit interface.

We had several members of the task group volunteer to provide contributions in preparation for our meeting in Bolder in September. Here are the expected contributions:

IF Interference - Jack Van der Star

Smart Antennas, Propagation & Power Control - Howard Sandler

Antenna Patterns - Reza, WFI

24GHz & 38GHz Coordination Process - Doug Sward, Industry Canada

Characterization Interference using PFD - James Cornelius

6.2 Coexistence Practice Attendance List

Coexistence Task Group		
Attendence July 99 Mtg		
Last Name	First Name	Company/Affiliation
Bogan	Zev	Amp-MaCom
Langston	Leland	Raytheon Telecommunications
Rosenblat	Jeff	Winstar
Lewis	Barry	Radcom's Agency, UK
Sandler	Howard	Nortel Networks
Gulliford	Dan	Triton Network Systems
Arief	Reza	Wireless Facilities
Lam	Ignatius	Nortel Networks
Jevremovic	Valadan	U. S. West
Palmer	Dave	Philips Broadband Wireless
Garrison	Jack	Wavetrace
Schafer	Dave	Wavetrace
German	Richard	Pjilips Broadband Wireless
Moreno	Alejandra	Frequency Coordination Sys Assoc
Taylor	Bill	Bell Canada
Chayer	Remi	Harris Corp-MCD
Chan	Rebecca	Industry Canada
Doucet	Keith	Newbridge Networks
Klein	Jay	Ensemble Communications
Hadar	Rami	Ensemble Communications
Kwan	Philip	Lucent Technologies
Faloner	David	Carlton University
Myers	Bill	Bosch Telecom
Wu	Kuang-Tsan	Nortel Networks
Yurtkuran	Erol	Integrity Communications
Cornelius	Jamie	Hardin & Associates
Fulton	Tom	Highspeed.com
Levin	Gregg	Broawave Communications
Lee	Allan	Spacebridge Networks Corp.

6.3 Coexistence Practice Working Document

IEEE 802.16.2

Reccommended Coexistence Practices for

Broadband Wireless Access Systems

Topical Outline

1. INTRODUCTION

This document prides guidelines for minimizing interference in Broadband Wireless Access (BWA) systems. A range of coexistence issues are addressed and recommended engineering practices provide guidance for system design, deployment, co-ordination and frequency usage. The document covers the 10 to 66 GHz frequency in general, but is focused on 20 – 40 GHz.

2. SCOPE

This document provides recommended practices for the design and coordinated deployment of broadband wireless access (BWA) systems to minimize interference so as to maximize system performance and/or service quality. The intent of this document is to define a set of consistent design and deployment recommendations for Broadband Wireless Access (BWA) systems. These recommendations, if followed by manufacturers and operators, will allow a wide range of equipment to coexist in a shared environment with minimum mutual interference. This practice provides recommendations in three specific areas. First, it recommends limits for both in-band and out-of-band emissions from BWA transmitters through parameters including radiated power, spectral masks and antenna patterns. Second, it recommends tolerance levels for certain receiver parameters, including noise floor degradation and blocking performance, for interference received from other BWA systems as well as from other terrestrial and satellite systems. Third, it recommends band plans, separation distances, and power flux density limits to facilitate coordination and to enable successful deployment of BWA systems with tolerable interference. The scope includes interference between systems deployed across geographic boundaries in the same frequency band and systems deployed in the same geographic area in different frequency bands (including different systems deployed by a single license-holder in sub-bands of the licensees authorized bandwidth). The scope does not cover coexistence issues due to intra-system frequency re-use within the operator's licensed band, and it does not consider the impact of interference created by BWA systems on non-BWA terrestrial and satellite systems. [Frequency range to include 10 – 60 GHz] [Mobile operation to be considered later if appropriate, but will not be addressed in the initial practice]

3.   KEY PARAMETERS
3.1   Equipment Design
3.1.1   TX
3.1.1.1   Maximum EIRP Spectral Density, Base Stations: 25 dBW/MHz
3.1.1.2   Maximum EIRP Spectral Density, CPE Stations: 35 dBW/MHz
3.1.1.3   Emissions: In-Band (licensed), Out of Sub-Band:
        (Use relative bandwidth for defining OOB emissions—not channelized approach.)

3.1.1.4 Power control range, including rain effects

3.1.1.5 Frequency stability

3.1.1.6 EMI/EMC Parameters

3.1.2   RX

3.1.2.1 EMI/EMC Prameters

3.1.2.2 Receiver Selectivity

3.1.2.3 Minimum Receiver Input 3rd order intercept

3.1.2.4

3.1.3   Antennas
3.1.3.1 Mask
3.1.3.2 Polarization
3.1.3.3 Other Parameters

4.   System Design
4.1   Receiver Sensitivity Degradation Tolerance   => 1dB over No (Related to I/N)
4.2   Subscriber TX lock to prevent transmissions when no received signal present
4.3   Fail-safe mechanisms for excessive frequency error, etc. (list of parameters)

5.   Propagation Model
6. Interference Scenarios
7.   Frequency Plans
7.1 Band Plan
7.2   Minimum TX/RX Frequency Separation
7.3   IF Interference
8.   Deployment
8.1   Co-ordination Process
8.2   Co-ordination Mitigation techniques
8.2.1   [Minimum Hub-Hub antenna separation and antenna orientation]
8.2.2   [Min sub-sub antenna separation and antenna orientation]
8.2.3

Appendix A:
Test & Measurement Procedures

NOTES meeting Boulder Sept 15, 16??

7. Appendix E, Phy Group Task Group

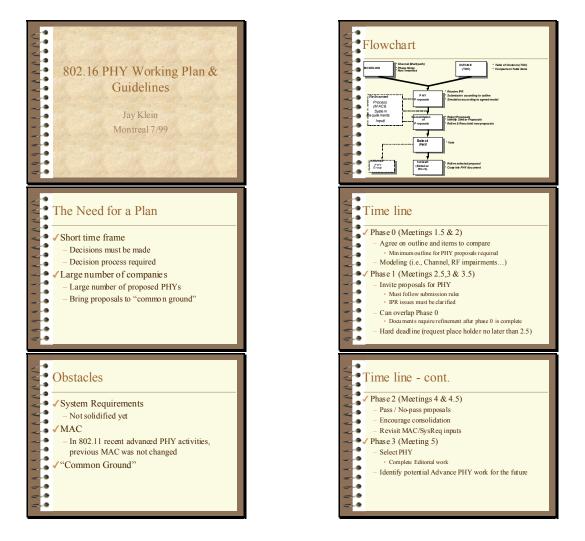### 7.1 Meeting Minutes

7/8/99

8:05 Jay Klein chair, Call to order, Scott Marin Secretary

Jay proposed a work plan (listed below). Discussion.

Straw Pole, for proposed flow.

Unanimous agreement to use Jay's flow as proposed.

7.2 Proposed Work flow

8. Appendix F, MAC Task Group Minutes

7/8/99

10:10 Jim Mollenauer, Chair, Call to order, Scott Marin Secretary

10:20 Ray Sanders, presentation, 802.16mc-99/01

11:14, Lisa Denney, presentation, 802.16mc-99/02

<div align="center">END OF DOCUMENT</div>