IEEE P802.3ae – 10 Gigabit Ethernet Minutes
Task Force Interim Meeting
Jan 16th – 18th, 2001
Raleigh, NC.

Prepared by: Jeff Warren

<mark>*Administrative*</mark>

The meeting convened at 8:43 am, Jan 16th, 2002. Jonathan Thatcher, the 10 GE Task Force chairman, opened the meeting with a discussion of the agenda.

The agenda was reviewed and modified. A motion to approve the agenda passed by acclamation (Moved by Tom Dineen/Jeff Warren). Jonathan then reviewed all the administrative items such as reflector and web locations, membership, voting, future meeting locations, call for patents and sign-in rules.

The two hot ticket items for this meeting are resolution of D4.0 sponsor ballot comments and brainstorming new serial PMD test methodologies. Additionally all clause editors will scrub their sections for conformance statements, adding shall statements where they are needed.

At this point (optimistically) the 10GbE standards effort is not planned to close until June 2002. This closure date is highly tied to the newly surfaced Serial PMD Testing Methodology issue and depends on a recirculation SB with no technical comments.

There were only two new participants for this meeting.

Some important links:
- Agenda = http://grouper.ieee.org/groups/802/3/ae/public/jul01/agenda_0202.pdf
- E-mail Reflector = http://grouper.ieee.org/groups/802/3/10G_study/email/thrd1.html
- Voting Rules = www.ieee802.org/3/rules/member.html
- Typical Plenary Meeting = www.ieee802.org/3/plenary.html
- 802.3ae 5 Criteria = www.ieee802.org/3/ae/criteria.pdf
- 802.3ae PAR = www.ieee802.org/3/rules/member.html
- 802.3 Presentation Policy = www.ieee802.org/3/public/presentproc.html
- Current 10GbE Draft Standard = http://www.ieee802.org/3/ae/private/index.html
- 802.3 Patent Policy www.ieee802.org/3/patent.html
- Site for existing patents http://standards.ieee.org/db/patents/

The P802.3ae 10-Gigabit Ethernet Task Force meeting was adjourned on Nov 15th, 2001 at approximately 11:35am. Many thanks to Ben Brown for hosting the meeting, especially pre-arranging breakfast for the group at large.

This meeting was dedicated to closing D4.0 SB comments. Clause 52 starts after lunch today. Logic tomorrow am all day, clause 53 tomorrow. Three presentations in clause 52 tomorrow. 8:30am Friday am get together as a group go until early afternoon.

All MIB comments were resolved; some Clause 30 comments were rejected. The IETF group should be OK with all the work done this week on the 10GE MIBs. Clause 45 comments were all sorted out and resolved. Clause 44's few editorial comments were resolved. Clause 46 two TR's dealing with "shalls" were dealt with, both were approved. Clause 47 had ten comments total; one was the Return Loss issue that was closed out. Another TR from Justin was rejected. A jitter comment was accepted, however one other jitter comment was modified and incorporated into the standard. Clause 48 had a lot of comments, most editorial and minor in nature. Comment 266 TR (jitter pattern for conformance testing) was rejected because there were not enough qualified people in the room to deal with the comment resolution. This change is being directed to the 10B side; Tom's comment 266 suggests an alternate test pattern. It sounds like the group at large will live with this comment for a while. Comment 266 was mainly rejected because Tom (the commenter) was not available to defend his comment. Clause 49 had no substantive comments to report on. Clause 50 made a change to J0 Section Trace from a 1-byte value to a 16-byte value. Clause 51 had one TR that was rejected; this comment will be carried forward. Clause 53 had 35 comments all except for one were resolved. The Clause 52 group has a plan for conclusion on how to move forward with the new "Test Method". The presumption is we'll be able to make test measurements with this new description. The Ad hoc group will continue to write the new test methodology and they will be meeting in February to close out the issue. So a large sub-set of the TR's and T's were left open. Six TR's were resolved un-satisfactorily. The current bathtub testing methodology may go away. Given the Clause 52 situation this group will NOT go for another re-circulation SB. There will be a two day February Interim meeting to deal with Clause 52 issues. The Clause 52 editor wants a written sub-clause dealing with the new testing methodology prior to the interim meeting starting. Comment 110 was changed to accept in principal, this comments deals with the addition of a 3rd test pattern. This is a PRBS(2^31) pattern, it's shorter in length than the two existing patterns. The voting results on this vote were Yes = 17, No = 4, Abstain = 24. Piers Dawes suggested this motion should be re-opened and make it clear that this motion deals ONLY with the LAN PHY. Piers showed some slides on how we might test transmitters against a known good transmitter, sort of a transmitter quality test. It screens for relevant effects such as ISI, jitter, W, RIN, BLW, and jitter "sigma". This direction is just that a direction, some people will continue to pursue the bathtub curves in particular developing test gear that can measure an verify against the bathtub test methodology. Comments 70, 71, and 72 deal with the PRBS31, they were also resolved given that Comment 110 was accepted. Some control and management bits were added for this new test pattern.

IEEE802.3ae Schedule

Plan 'A'

Jan. 18	802.3ae interim meeting closes
Feb. 13-14	**Interim 802.3ae PMD meeting**
Feb. 15	**Distribute D4.1**; announce sponsor ballot recirculation
Mar. 1	D4.1 sponsor ballot recirculation closes
Mar. 11-15	802 Plenary; 802.3 & 802 conditional approval
Mar. 22	**Distribute D4.2**; announce sponsor ballot recirculation
Apr. 5	D4.2 sponsor ballot recirculation closes
Apr.	**Interim 802.3ae interim meeting**
Apr. 26	**Distribute D5.0**; announce sponsor ballot recirculation
May 1	Submit D5.0 to RevCom
May 10	D5.0 sponsor ballot recirculation closes
May	Interim 802.3ae interim meeting
Jun. 11	Standards Board approval!

Plan 'B'

Jan. 18	802.3ae interim meeting closes
Feb. 13-14	Interim 802.3ae PMD meeting
Feb. 15	**Distribute D4.1**; announce sponsor ballot recirculation
Mar. 1	D4.1 sponsor ballot recirculation closes
Mar. 11-15	802 Plenary
Mar. 22	**Distribute D4.2**; announce sponsor ballot recirculation
Apr. 5	D4.2 sponsor ballot recirculation closes
Apr.	Interim 802.3ae interim meeting
Apr. 26	**Distribute D4.3**; announce sponsor ballot recirculation
May 10	D4.3 sponsor ballot recirculation closes
May	Interim 802.3ae interim meeting
May 31	**Distribute D4.4**; announce sponsor ballot recirculation
Jun. 14	D4.4 sponsor ballot recirculation closes
Jul. 8-12	802 Plenary; 802.3 & 802 approval
Jul. 19	Submit D5.0 to RevCom
Sep.	Standards Board approval!

Outline for these Minutes

Future IEEE Meetings

Month	Days	Year	Meeting Type	City	State/Country
February	13 – 14 *	2002	Interim	Santa Rosa	CA
March	11-15	2002	Plenary	St. Louis	MO
April **TBD**	11-12	2002	Interim	Vancouver	BC., Canada
May	20-22	2002	Interim	Edinburgh	Scotland
July	7-12	2002	Plenary	Vancouver	BC. Canada

There's a link to the next meeting location: http://www.ieee802.org/meeting/index.html
This March plenary meeting shall be held at the Hyatt Regency St Louis, MO, USA during the week of March 11th. Prior to the February interim meeting the Agilent Santa Rosa, CA. test lab shall open their doors to assist IEEE802.3ae PMD'ers with a plug-fest on optical testing. This Plug fest will be on February 11th and 12th. This will be announced on the PMD reflector.

IEEE P802.3ae Objectives

➢ Preserve the 802.3/Ethernet frame format at the MAC Client service interface.
➢ Meet 802 Functional Requirements, with the possible exception of Hamming Distance.
➢ Preserve minimum and maximum FrameSize of current 802.3 Std.
➢ Support full-duplex operation only.
➢ Support star-wired local area networks using point-to-point links and structured cabling topologies.
➢ Specify an optional Media Independent Interface (MII).
➢ Support proposed standard P802.3ad (Link Aggregation)
➢ Support a speed of 10.000 Gb/s at the MAC/PLS service interface
➢ Define two families of PHYs
   • A LAN PHY, operating at a data rate of 10.000 Gb/s
   • A WAN PHY, operating at a data rate compatible with the payload rate of OC-192c/SDH VC-4-64c
➢ Define a mechanism to adapt the MAC/PLS data rate to the data rate of the WAN PHY
➢ Provide Physical Layer specifications which support link distances of:
   • At least 65 meters over MMF**
   • At least 300 meters over installed MMF*
   • At least 2 km over SMF

- At least 10 km over SMF
- At least 40 km over SMF (must be engineered for 40km, otherwise 30km)

> LEGEND:
> * Installed = all MMF specified in 802.3z (62.5 micron 160/500 MHz*km FDDI-grade is the worst case).
> ** Implies that the solution is cost optimized for this distance.

➢ Support fiber media selected from the second edition of ISO/IEC 11801 (802.3 to work with SC25/WG3 to develop appropriate specifications for any new fiber media).

P802.3ae Contacts

➢ For the latest list of key P802.3ae contacts please reference the IEEE P802.3ae 10Gb/s Ethernet Task Force Chairs and Editors web page located at http://grouper.ieee.org/groups/802/3/contacts.html this web page is maintained by David Law.

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Membership Rules

Membership is by individual, not company.

To become a voter:
- Attend and sign the attendance book at least 75% of the sessions of two Working Group 802.3 Plenary meetings (within the last four).

- ❑ Full attendance at a two-day or more duly constituted Working Group 802.3 Interim Meeting can be substituted for attendance at one plenary.
- ❑ Have complete and current contact information recorded in the Working Group 802.3 database.
- ❑ Request to become a voter during a Working Group 802.3 Opening or Closing plenary meeting when additions to the voter list are solicited by the Chair from the "Potential Voter" list.

To remain a voter you must:
- ❑ Maintain current contact information in the Working Group 802.3 database.
- ❑ Have 75% attendance during at least two of the last four plenaries (Attendance at an interim can substitute for attendance at no more than 1 plenary).
  - ❑ Participate in Working Group ballots. You can be dropped for not returning or abstaining in two of the last three ballots.

Agenda

The chairman did not post the agenda slides.

Motions

Motion # 1   General Session Motion (Tuesday)
Description: Approval of October minutes.
Motion Type: Technical 50 % required
Moved By: Tom Dineen
Seconded By: _____
Results: All Attendees   Unanomous   **100 %**

Time: 10:02 am 01/18/02
                                P/F: **Passes**

Motion # 2   General Session Motion (Tuesday)
Description: Move that IEEE P802.3ae TF approve the comment resolution for all clauses except 52 and 53.
Motion Type: Technical 75 % required
Moved By: Brad Booth
Seconded By: Tom Dineen
Results: All Attendees   unanimous   **100 %**

Time: 10:39 am 01/18/02
                                P/F: **Passes**

Motion # 3   General Session Motion (Tuesday)
Description: Move that IEEE P802.3ae TF approve the production of a D4.01 Working Draft for editorial checking and for use at the February interim meeting.

Motion Type: Technical 75 % required
Moved By: Pat Thaler
Seconded By: Ben Brown
Results: All Attendees   Y __   N __   A __   <mark>100 %</mark>

Time: 10:50 am 01/18/02
<center>P/F: **Passes**</center>

Note: This interim meeting will exclusively deal with resolution of comments against Clause 52, i.e. the only Clause with open technical comments.

Motion # 5   General Session Motion (Tuesday)
Description: Open motion 2 above.
Motion Type: Technical 75 % required
Moved By: _____ Rogers
Seconded By: Richard Johnson
Results: All Attendees   Y __   N __   A __   <mark>100 %</mark>

Time: 11:09 am 01/18/02
<center>P/F: **Passes**</center>

Discussion: The offer was to change comment 266 to "Accept in Principal". Pat suggested a substitute response that lane 4 end up with an equal number of flips as the other lanes. The commenter will hang tough on this view that documentation of the 10B codes goes into the draft standard. *Another option is accept a change to the current CJPATH so that the running disparity at the end of all lanes will be the same as at the beginning of the pattern on all lanes. Additionally the 10B codes will be put into the draft.*

<center><mark>*General Presentations & Minutes*</mark></center>

1. **Opening Business (Jonathan Thatcher)**
   Link not available at time of posting minutes

This opening presentation included the typical introductory material, reference the above presentation for details

2. **D4.0 Sponsor Balloting Status (Brad Booth)**
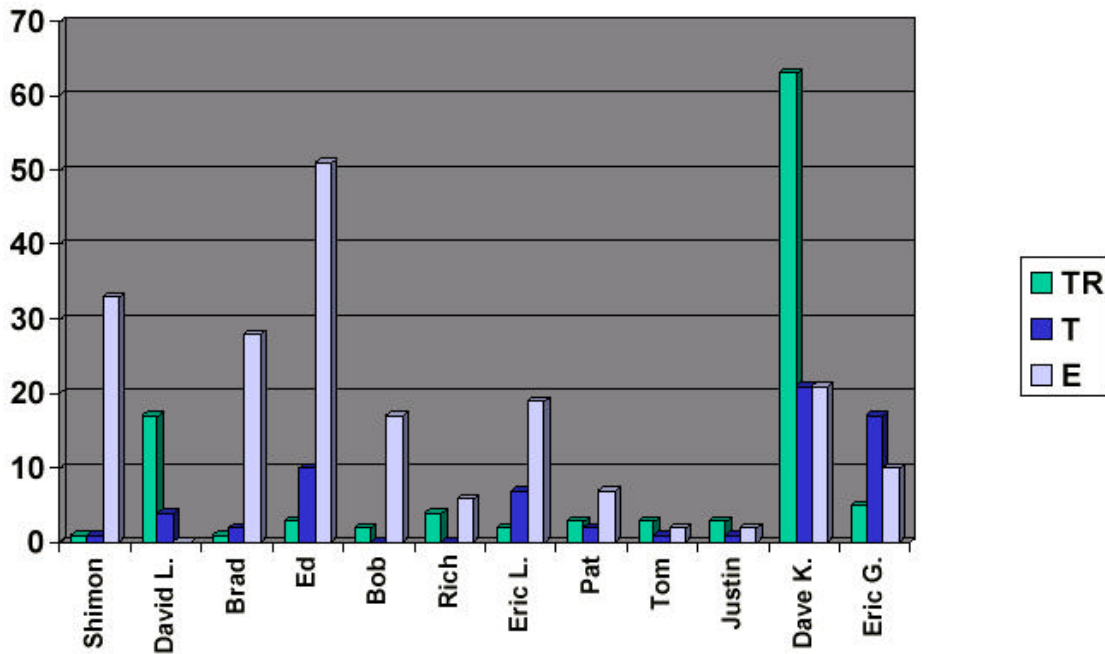   Link not available at time of posting minutes

Brad described the current balloting status. He advised people to be timely with their balloting returns and to use the ballot web site. All balloting cycles close at midnight EST. There were a total of 109 SB people with 83 returning ballots. The results were:
   - ❑ Affirmatives   63
   - ❑ Negatives   13
   - ❑ Abstentions   7

❑ Return Rate 76%
❑ Approval Rate 82%

A total of 27 people returned comments mainly against Clause 52.

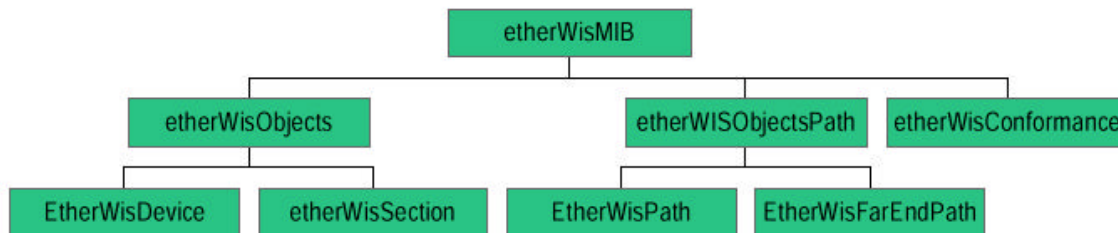## D4.0 Comment Distribution

3. **WIS MIB Status (Dan Romascanu)**
   http://grouper.ieee.org/groups/802/3/ae/public/jan02/romascanu_1_0102.pdf

Dan reported on the IETF activities going on that related to our 10GE standard. He described the IETF charter w.r.t. it's close working relationship with IEEE. The current schedule shows 2/2002 for Internet Draft WG Last Call and 4/2002 for submission to the IESG. The WIS MIB issues are in the area of the WAN Interface Sublayer. They are addressing the layer model for an Ethernet I/F that employs the WIS, how SNMP objects map to the GDMO objects in the oWIS managed class defined in P802.3ae Clause 30, and some RMON considerations. The structure of the proposed WIS MIB was reviewed. The design team consists of:

Mike Ayers - BMC Software, Inc.
John Flick - Hewlett-Packard Company
C. M. Heard - Consultant
Kam Lam - Lucent Technologies
Kerry McDonald - CSU San Bernardino
K. C. Norseth - Enterasys Networks
Kaj Tesink - Telcordia Technologies

LLC Layer	ifEntry
MAC Layer	ifType: ethernetCsmacd(6)
Reconciliation Sublayer	ifHighSpeed: 9294 Mb/s
Physical Coding Sublayer	
Path Layer	ifEntry
	ifType: sonetPath(50)
	ifHighSpeed: 9585 Mbps
Line Layer	ifEntry
Section Layer	ifType: sonet(39)
Physical Medium Layer	ifHighSpeed: 9953 Mbps

- ❑ Issue #1 – ifStack Mapping
- ❑ Issue #2 – Compliance Statement for 10 GBASE-W Interfaces. They want some mandatory objects to be optional.
- ❑ Issue #3 – Relationship with the SONET MIB.
- ❑ Issue #4 – WIS MIB – MAU MIB Relationship

4. 10GFC Draft Status (Rich Taborek)
Link not available at time of posting minutes

Rich said the latest draft is D2.0 T11/01-099v5 www.t11.org holding letter ballot comments from 2/02 – 4/02. Target application is SAN inter-switch links. This is mainly a direct reference to the 10GE IEEE standard. This is a 12X Fiber Channel data rate. In the market is 1X and 2X. Focus is on short distances, jumper cables to 300 meters, plus smaller form factor transceivers than MSA. No 1550nm option, does have all other

PMD's in IEEE802.3ae can use the same optical modules as this committee is using. Standard will be published in 10/02. The interfaces for the modules are XAUI and XSBI.

5. Measurement Difficulties (Team of 6 Optics Experts)

A group of six optics experts explained that there is some concerns with existing test equipment. In particular the measurement techniques may be changed in the current standard or the group may use the more stringent testing methods in SONET OC-192c specs. Since Ethernet is built around "Plug and Play" and SONET is built on engineered links the testing requirements for Ethernet are much more difficult. One dimension of this issue is how test engineers would calibrate lab test equipment. This sounds expensive and might result in a "Golden Lab" where vendors would go to validate their devices. The 802.3ae chairman stated that our test methods and specification is world-class w.r.t. it's robustness and completeness. The issue here is that test equipment is not up to the task of validating the specification. Given the test equipment is not up to the task of validating our specification parameters the question comes down to what level of confidence do we have that our devices are compliant with the Ethernet "Plug-and-Play" requirements. One of proposed solutions to the spec could improve the accuracy of the measurement by 50% in terms of an eye opening. This just deals with the error detector aspect of these new measurement techniques. However the error detector portion of this uncertainty is a large portion of the measurement problem to be solved. It could take 6 – 12 months to develop test gear that is required to validate the existing standard. Sticking with the current specification implies that system vendors will be required to purchase more test equipment and spend much more money on that test equipment. This discussion raised the level of understanding to the IEEE802.3ae committee with respects to these new measurement issues. The 802.3 chairman described the process used to impact the 75% approval rating. All comments will be considered, some will result in changes to the standard and then it shall be recirculated. If we are unable to complete the comment resolution at this meeting then more work (an additional meeting) is required. Some feel that keeping the standard as is might not delay the standard, but would delay the solution to compliant devices reaching the market. It could be OK to do this especially given that the components are interoperable now. Something else to consider is that parts available today are most likely both compliant and interoperable however as time goes on and manufacturing is taking liberty to tweak component manufacturing processes in order to save costs that devices may not be compliant.

STRAW-POLL
Should we continue down the path we are on plus new test equipment (15), or
Switch to a new specification with existing test equipment(19)?
Don't know(22)
Abstains(2)