IEEE P802.3ae – 10 Gigabit Ethernet Minutes
Task Force Plenary Meeting
March 13th – 15th, 2001
Hilton Head, SC.

Prepared by: Jeff Warren

Administrative

The meeting convened at 8:25am, March 13th, 2001. Jonathan Thatcher, the 10 GE Task Force chairman, opened the meeting with a presentation of the agenda. The agenda was reviewed and modified. A motion to approve the agenda passed by acclamation. 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.

Dave Cunningham has stepped down from the editorship of clause 54. The IEEE 802.3ae chairman, Jonathan Thatcher, appointed Eric Grann from Blaze as the new clause 54 editor, the committee approved this appointment by acclimation.

According to the 802.3 operating rules the 802.3 Working Group must be convinced that the 10 GbE draft standard is ready for Working Group ballot. By the end of this plenary meeting the committee voted unanimously to forward the IEEE802.3ae 10 GbE standard to a Working Group ballot. This WG ballot period for draft 3.0 has begun and is planned to end on May 4th, 2001.

This three day plenary meeting was comprised of a split general session occurring on both the first and last day and six individual tracks responsible for ballot comment review & resolution.

The IEEE802.3ae standards time line targets a 1Q02 completion date for the final standard. At this point in time the 10GbE standards effort is 67 % complete, i.e. 24 of 36 months has passed.

Some important links:
- Agenda = http://grouper.ieee.org/groups/802/3/ae/public/jan01/index.html
- 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

The P802.3ae 10-Gigabit Ethernet Task Force meeting was adjourned at 2:42pm on March 14th, 2001.

Goals & Accomplishments for this Meeting

This meeting was dedicated to the upcoming working group ballot. The big-ticket items to be dealt with are Jitter and MDC/MDIO and the removal of 10Gbase-LW4 PHY. All three of these three big-ticket items were dealt with satisfactorily. A few other significant issues that were resolved during this meeting included interferometric noise, compliance and testing, plus link status and signal detect. The most intensive effort that took place at this plenary meeting was the generation of draft 3.0 during the evening prior to the last day of this meeting. It was a huge effort by our clause editors and chief editor Brad Booth. The highlights of this draft were presented to the IEEE802.3 Ethernet working group, clause-by-clause.

Outline for these Minutes

Future IEEE Meetings

Month	Days	Year	Meeting Type	City	State/Country
May	23rd – 25th	2001	Interim	St. Louis	Missouri
July	9th – 13th	2001	Plenary	Portland	Oregon
September	1st half	2001	Interim	Copenhagen	Denmark

There's a link to the next meeting location: http://www.ieee802.org/3/interims/index.html The next IEEE meeting (an interim meeting) will be held in St. Louis, Missouri from May 23rd – 25th, 2001 at the Adams Mark Hotel, reference this URL www.adamsmark.com/stlouis/index.html The July plenary meeting shall be held at the Portland, Oregon downtown Marriott During the week of July 8th – 13th, 2001. Reference this URL http://grouper.ieee.org/groups/802/meeting/meeting_files/MI-0701-05.pdf

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

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.

Name	P802.3ae Standards Title	e-mail
Jonathan Thatcher	P802.3ae Task Force Chair	jonathan@worldwidepackets.com
Stephen Haddock	Vice Chair	shaddock@extremenetworks.com
Brad Booth	Task Force Chief Editor	bradley.booth@intel.com
Walt Thirion	PMD Track Chair	wthirion@jatotech.com
Ben Brown	Logic Track Chair	bbrown@amcc.com
Jeff Warren	Task Force Secretary	jwarren@extremenetworks.com
Shimon Muller	Clause 1, 2, 4, 6, 22, 31, 31B and 35 Editor	Shimon.Muller@Eng.Sun.Com
David Law	Clause 30 (Management) Editor	David_Law@3Com.com
Ed Turner	Clause 44 (MDC/MDIO) Editor	Edward_Turner@3Com.com
Brad Booth	Clause 45 (intro) Editor	bradley.booth@intel.com
Bob Grow	Clause 46 (XGMII) Editor	Bob.Grow@Intel.com

Dawson Kesling	Clause 47 (XAUI) Editor	Dawson.w.kesling@intel.com
Rich Taborek	Clause 48 (8B/10B PCS/PMA) Editor	rtaborek@Nserial.com
Rhett Brikovskis	Clause 48 (8b/10b PCS/PMA) Co-Editor	rhett@lanterncom.com
Pat Thaler	Clause 49 (64b/66b PCS) Editor	Pat_Thaler@Agilent.com
Tom Alexander	Clause 50 (WIS) Editor	tom_alexander@pmc-sierra.com
Juan Pineda	Clause 50 (WIS) Co-Editor	juan@bravidacorp.com
Justin Chang	Clause 51 (Serial PMA) Editor	justin@quaketech.com
David Kabal	Clause 52 (Serial PMDs) Editor	dkabal@PICOLIGHT.COM
Paul Bottorff	Clause 53 (WWDM PMA) Editor	pbottorf@nortelnetworks.com
Eric Grann	Clause 54 (WWDM PMD) Editor	Grann@blazenp.com
Bill Lane	Technical Writer	bill_lane@ieee.org

Agenda

General Session 802.3ae
Tuesday Morning – March 13th, 2001

- ❑ Welcome and Introductions, Jonathan Thatcher (20 min)
- ❑ Review / Approve Agenda
- ❑ Chairs Introductory Comments
- ❑ Call for Patents
- ❑ Schedule Review & Meeting Objectives
- ❑ Editor's Report (distribute comment DB?)
- ❑ Liaison Reports
    - o 10GFC Liaison Report, Rich Taborek (5 min)
    - o TIA 2.2.1 Liaison Report, Mike Hackert (30 min)
    - o Liaison Report, Chris Di Minico (5 min)
    - o Tom Palkert, OIF
- ❑ Ad Hoc Reports
    - o Piers Dawe: Serial PMD
    - o Bill Reysen: Serial Jitter
    - o Anthony Sanders: XAUI Jitter
    - o Vipul Bhatt: Concluding report of the Equalization Ad Hoc (30 minutes)
- ❑ Presentations
    - o WAN PHY Clock Accuracy and Transport over OTN, Geoffrey Garner (15 min)
    - o 10GBASE-R Test Patterns, John Ewen (15 minutes)
    - o Jitter test pattern for 10GBASE-R, Pat Thaler (15 minutes)
    - o Test Pattern Generation, Jonathan Thatcher (15 minutes)
- ❑ Motions
    - o Comment #: 10GBASE-LW4
    - o Patterns
    - o PPM
    - o Revert on clause 47/48

<table>
<tr><td colspan="2" align="center">**Parallel Tracks 1 through 6 and Various Breakout Meetings**
Tuesday Afternoon – March 13th, 2001
Wednesday Morning – March 14th, 2001</td></tr>
</table>

Track 1-Rm 822 (10)   Clauses **1++, 44, 45**
Track 2-Bayley's (40)   Clause   **54**
Track 3-Captain (40)   Clauses **45, 30, 46, 49**
Track 4-Fairfield (40)   Clauses **51, 53, 50**
Track 5-Woodward (50)   Clauses **47, 48**

- On the (lack of) requirement for XAUI sig detect; Joel Dedrick (20 min)

Track 6-Ballroom J (200)   Clause   **52**

- Interferometric noise for 1310 nm serial, Peter Öhlen (15 minutes)
- Interferometric Noise Penalty in SMF Links - Exp Results, Petar Pepeljugoski (15 minutes)
- Deterministic Jitter Specification for Short Wavelength Links, Petar Pepeljugoski (10 minutes)
- Interferometric Noise and Solution Paths for IEEE 802.3ae 10 Gb Links, Petar Pepeljugoski (15 minutes)
- Difference in Jitter definition of ITU and IEEE 10G initiative, Juergen Rahn (10 minutes)
- Issues with OMA specification versus "traditional " average power /extinction specification, Juergen Rahn (10 minutes)

<table>
<tr><td align="center">**General Session 802.3ae**
Wednesday Afternoon – March 13th, 2001</td></tr>
</table>

- ❑ Track/Clause Reports & Motion Madness
- ❑ Editors plan-for-closure meeting
- ❑ New Business / Other Motions
- ❑ Approve Minutes of Irvine, CA. Meeting
- ❑ Adjourn

<table>
<tr><td align="center">**Clause Editors Session 802.3ae**
Wednesday Evening & Night – March 13th, 2001</td></tr>
</table>

- ❑ 7:00 p.m. to Thursday 8:30 a.m. Creation of draft 2.3

Meeting Room Breakout Details

Breakout Details			
Track #	Room Location	Attendance Estimate	Clauses
1	Rm. 822	5	1++, 44 and 45
2	Bayleys	10	54
3	Captain	26	45, 30, 46 and 49
4	Fairfield	15	51, 53 and 50
5	Woodward	37	47 and 48
6	Ballroom J	46	52

The "official" minutes for the individual sub-clause breakout meeting above can be found in the comment database.

Closing Discussions

The Irvine, CA minutes were approved by acclimation. Resolved 733+ comments in a 24 hour period, excellent progress. All technical holes have been plugged. There was only one change to the clauses Shimon covers, very few for David Law's clauses. The biggest change to clause 45 was the removal of LW4 and jitter information. Clause 46 covered by Bob Grow had changes to the start delimiter plus a number of editorial comments. There were minor changes to clause 47 plus Signal Detect was resolved. The SD editor's box is removed because the original commentor on this subject removed his comment. Rich Taborek's clause 48 resolved a number of editorial comments, or as he puts them low-end technical comments. Annex 48A is still normative. Annex 48B covered by Anthony Sanders still has more work to be done, is a work in progress. This new annex will most likely be informative; the full outline is in place. This outline came from Fiber Channel. This annex 48B is dealing with Jitter methodology for XAUI and LX4 only, since it is informative the fact that it is just an outline is not so problematic w.r.t. Working Group forwarding. Some 802.3ae participants felt it was better to point to MJS at this time. Rich Taborek felt it was better to go forward as is. Clause 49's jitter pattern mods were deferred to an ad-hoc. All clause 50 & 50A comments were resolved, likewise for clauses 51, 52 and 54. Clause 54 had the lion's share of comments and did an assume job of addressing each and every one of them. Clause 54 will be renumbered to the open clause number clause 53 during the next time around.

<p align="center">*<mark>Motions</mark>*</p>

Motion # 1   General Session Motion

Description: Move to accept response to comment 587 and remove all technical content that exclusively supports 10GBASE-LW4, and make all editorial changes necessary to remove references to 10GBASE-LW4.

Motion Type: Technical > 75% required

Moved By: Bob Grow

Seconded By: Tom Dineen

Results:

All Attendees	Y 73	N 6	A 37	**92%**
Voting Members	Y 54	N 6	A 17	**90%**

Time: 11:53am   03/13/01

<p align="center">P/F: **Passes**</p>

This motion is related to comment 587 from Rich Taborek. During the clause 54 pre-meeting it was discussed that LW4 and LX4 are comprised of different components. There is a huge hole in the draft w.r.t. LW4 components, zero vendors stepped forward to say they were developing LW4 components. So it was suggested that LW4 be removed from the standard and moved forward at an expeditious pace with focus on the implementations that will be built.

Strawpoll: Should we direct clause 54 to strike this LW4 proposal?

➢ Yes   = 69 **93%**
➢ No   = 5
➢ Abstain   = 46

This would have impacts to multiple clauses. Keeping in mind the magnitude to most clauses is minor with the exception of clause 54. This action eliminates clause 53 all together. The chairman asked the entire room if anyone present would submit a "TR" comment to future drafts of the standard if this LW4 was removed. Not a single person said they would submit a "TR" later on during the balloting process, even the few individuals that opposed this motion.

Motion # 2   General Session Motion

Description: Move to create an ad-hoc to bring to the May meeting (with circulation 2 weeks before the meeting) a complete set of changes to the draft and justification with consideration of the existing scrambler, ewen_1_0301, thatcher_1_0301 and thaler_1_0301 presentations.

Motion Type: Technical > 75% required

Moved By: B. Reysen

Seconded By: P. Thaler

Results: All Attendees   **<mark>Acclimation 100%</mark>**

Time: 11:32am 03/13/01

<p align="center">P/F: **Passed**</p>

Strawpoll: A total of zero (0) individuals support leaving test patterns as is. A total of 13 individuals support leaning towards Pat Thaler's proposal. A total of 6 individuals support leaning towards the Thatcher & Ewen proposals. A total of 40 abstained. No clear consensus for a preference on the new test pattern concepts, this is why all three will be considered by the newly formed ad-hoc.

The question of why a new ad-hoc was required came up. Jonathan stated that the current Jitter ad-hoc chair has a bias towards one of these proposed solutions. Piers Dawe felt that although this type of testing is very useful to verify designs, but they are not required in the standard, just allow the individual vendors to do their own thing.

Ben Brown will chair this ad-hoc. The PMD Serial Jitter reflector will be used for this newly formed ad-hoc.

Motion # 3   General Session Motion
Description: Move that "Accept in principle and add a note to reference +/- 20 ppm in the following clauses: 49, 50, 51 and 52".
Motion Type: Technical > 75% required
Moved By: G. Garner
Seconded By: J-L Ferrant
Results: All Attendees   Y 20   N 34   A 43   **37 %**
                        802.3 Members   Y 12   N 25   A 22   **32 %**
Time: 12:15pm 03/13/01
<div align="center">P/F: Fails</div>

This motion is in response to comment number 369. The effect of placing this in the standard is to make sure that if someone wants to attach to an OTN network, then a 20 +/- ppm clock is required. There was some discussion about the placement of new text in the standard. This results in an option in the standard, the committee should just change the requirement from +/- 100ppm to +/- 20ppm and do away with the optionally. If we pass this motion we go from seven port types to seven plus a few more, so we should simply pick 100 or 20 ppm.

Strawpoll: Do we favor a warning, i.e. a "footnote" in the document or changing the tolerance to +/- 20ppm, or no change. The group was leaning towards no change.

Motion # 4   General Session Motion
Description: Move that we reconsider text for the response to comment 930.
Motion Type: Technical > 75% required
Moved By:
Seconded By:
Results: **All Attendees**   **Y ?   N ?   A ?**
                        802.3 Members   **Y ?   N ?   A ?**
Time: 12:39pm 03/13/01
<div align="center">P/F: Fails</div>

This motion is tied to 930.

Motion # 5   General Session Motion

Description: Move that IEEE P802.3ae TF affirm the resolution of all comments on IEEE P802.3ae/D2.1 as approved during the individual tracks, and that the editors are directed to create D2.3 for presentation to the Working Group.
Motion Type: Technical > 75% required
Moved By: Ben Brown
Seconded By: Walt Thirion
Results: All Attendees   Y 103 N 0   A 15   **100 %**
                 802.3 Members   Y 69   N 0   A 6   **100 %**
Time: 2:20pm 03/14/01
<div align="center">P/F: Passed</div>

Since annex 48B is being written this evening, at least one individual asked for clarification on what they were voting for in this motion. More specifically they wanted to know how can they vote for this since we haven't seen the "informative" annex 48B? Ben Brown commented that we could add an explicit contingency – however by a straw poll we learn that very few wanted to add this contingency.

Motion # 6   General Session Motion

Description: Move:
- ❑ That IEEE P802.3ae TF direct the editors to create D3.0 in anticipation of a Working Group Ballot.
- ❑ That the TF requests that 802.3 approve a WG ballot to close prior to the May interim meeting
- ❑ That the TF request the creation of a Sponsor ballot pool
- ❑ That the TF request to be authorized to conduct meetings and recirculation ballots as necessary to resolve comments received during the WG ballot

Motion Type: Technical > 75% required
Moved By: Ben Brown
Seconded By: Brad Booth
Results: All Attendees   Y 107 N 0   A 6
                 802.3 Members   Y 75   N 0   A 2
Time: 2:40pm 03/14/01
<div align="center">P/F: Passed</div>

General Presentations & Minutes

1. Opening Business (Jonathan Thatcher)
http://grouper.ieee.org/groups/802/3/ae/public/mar01/intro_0900.pdf

Typical introductory material, please reference the presentation for details. Jonathan pointed out that there is a comment and presentation that appears to be out of order since new features have been cut off. This deals with the addition of a 10Gbase-LR4 as an alternative to LX4. This would eliminated the need for 8b/10b. This proposal is coming in from Paul Bottorff. The chairman asked the group if there was any confusion that 8b/10b was part of the 'LX4' Port_Type that is contained in the current draft of the IEEE802.3ae standard. In the past the group voted as a committee to forward the standard forward as is and as the basis for the standard, so this line of thinking is out-of-order.

2. Document Status (Brad Booth)
http://www.ieee802.org/3/ae/public/mar01/bbooth_1_0301.pdf

The total number of commenters came in at 54, with a total of 733 comments. Of these comments, 377 were technical and 356 were editorial. Additionally 13 comments from a single commenter did not make it into the database due to an improper format used. By March 2001 shooting to have structure of document complete and ready to go to Working Group ballot, this happened! By September 2001 the document needs to be technically complete and go to sponsor ballot. Then by January 2002 the fine-tuning has to complete and the document submitted to RevCom. At this meeting the main goal is to complete the build out of the skeleton by filling in all the technical holes. Brad reminded the group that there will be more ballot cycles to come.

3. 10GFC Liaison Report (Rich Taborek)
http://www.ieee802.org/3/ae/public/mar01/taborek_1_0301.pdf

Mr. Taborek informed the group that this T11/01-099v0 document is currently in a ballot phase at draft 1.0 level. The ballot ends on 4/4/01. There are minor differences in this FC standard and our physical layer 10 GbE standard, mainly a 2% speed difference. They recently added the WIS to their PHY. An attempt to change this above mentioned speed difference was not approved. Some other differences are the support for cooper media, LSS and 850nm WDM. The schedule is a 3-month lagging delta to ours. The 10GFC standard can be found at ftp://ftp.t11.org/t11/pub/fc/10gfc/01-099v0.pdf

4. TIA 2.2.1 Liaison Report (Mike Hackert)
http://www.ieee802.org/3/ae/public/mar01/hackert_1_0301.pdf

Mr. Hackert notified the group that their Next Generation 50 um fiber (200 MHz km) recommendation is complete. The formalization process is also underway. The TIA ballot is called FOTP 220. This recommendation achieves an optimum balance between fiber and transceiver properties. They are now in the "work the standards" process. Mike felt

that the TIA and IEC standards process can be "worked" in time so that our standard can reference the required publications by the March 2002 time frame, it will be very close.

5. TIA TR42 Liaison (Chris Di Minico)
   Presentation was not submitted for posting?

Mr. Di Minico gave a brief report on the TR42 activities related to TIA/EIA-568-B.3.

6. OIF Liaison Report (Tom Plackert)
   http://www.ieee802.org/3/ae/public/mar01/palkert_1_0301.pdf

Mr. Plackert's report focused on the PLL activities within OIF. There is an SFI/SPI-5 (OC-768) interface that has FEC on it, this interface uses 16 XAUI like connections for an aggregate data rate of 40 Gbps. Tom will post the common electrical specification for this interface to our web site. Since the last OIF meeting they passed a four fiber VSR OC192 spec that could be useful to the 802.3ae committee system vendors, they are:
- ❑ Four fiber VSR OC-192
- ❑ OC-192 1310 nm VSR
- ❑ Serial Short-wave VSR Interface for Multimode Fiber
- ❑ CWDM Short-wave 4 wavelength VSR

7. Report from Serial Ad Hoc (Piers Dawe)
   Presentation was not submitted for posting?

Mr. Dawe reported that the main issues his group has been dealing with are test methods, noise contributions such as RIN and interferometric noise, triple trade off curves and feature set (management and control). There are three new test patterns to be proposed this week. Interferometric noise is still being debated however it is expected to be resolved this week. No new issues have surfaced. With regards to the interferometric noise the serial ad-hoc group has estimated this to be approximately ½ dB. This shall be added to the spreadsheet link model.

8. Jitter Ad Hoc Update (Bill Reysen)
   Presentation was not submitted for posting?

Mr. Reysen reported that they met twice since the last meeting. The high level objective for this week is to close on Jitter text for the document. This objective was completed by the end of this meeting, in particular they developed the text for an agreed upon jitter methodology and will come back to the May meeting with jitter test patterns based on the 58 bit scrambler. Both the transmitter and receiver test measurements were highlighted along with "jitter mask" envelope.

10. Equalization Ad Hoc Concluding Report (Vipul Bhatt)
   http://www.ieee802.org/3/ae/public/mar01/bhatt_1_0301.pdf

Mr. Bhatt reported that the IEEE802.3ae Equalization Ad Hoc that began back on 9/00 has concluded. Call for Interest is planned for the next Plenary meeting in July 2001. This group performed some detailed analysis and made recommendations that lead to changes to the 1550nm specification w.r.t. Polarization Mode Dispersion (PMD). Even though this ad-hoc is ending, Vipul plans to go forward with a "Call for Interest" to expand his groups efforts. In particular Vipul felt the existing IEEE802.3ae MMF PMD's were adequate but that his new standards effort would result focus on a SMF equalization-enhanced superset PMD to the existing IEEE802.3ae 1550nm PMD's.

11. WAN PHY Clock Accuracy and Transport over OTN (Geoffrey Garner)
http://www.ieee802.org/3/ae/public/mar01/garner_1_0301.pdf

Mr. Garner stated the optical transport network (OTN) is specified by ITU-T recommendation G.709 and it includes capability for DWDM. The ELTE's accommodate a +/- 100ppm frequency offset. The new transport network, OTN that includes switching at the wavelength level for rates of 2.5, 10 and 40 Gpbs. Both bit synchronous and asynchronous payloads are supported. The solution for OTN transport implies that a 20ppm clock is required, this could be dealt with by adding an optional table in the IEEE802.3ae specification because the current 10 GbE spec calls for a +/- 100ppm clock tolerance. The relative costs of 20 ppm oscillators is minor as compared to 100-ppm oscillators, a 1-% hit to the 10 GbE products. There are six separate comments that deal with this issue. The problem with an optional table that calls out an optional set of clocking is that we explode the number of PMDs again, adding a few more PMD's. It was recognized that if a systems supplier would develop an OTN compliant device that the already know a +/- 20ppm clock is required and they would chose one for their implementation.

12. 10GBASE-R Test Patterns (John Ewen)
http://www.ieee802.org/3/ae/public/mar01/ewen_1_0301.pdf

Mr. Ewen described some alternate test patterns that can address some pathological events that can occur on average once per day. Test patterns can be inserted at the scrambler or at the 66:16 gearbox. The proposed Test Sequence uses the existing scrambler and runs for N bits, where N = 16. Pick a seed to stress run-length, transition density and baseline wander. In summary John suggested using the existing scrambler / descrambler to generate and check test patterns. That there is a wide variety of pattern characteristics available and he has selected long PRBS segments using short seed values. The pattern can be set via management registers, this enables new patterns to be defined in the future without modifying hardware. This will result in added costs due to an increased complexity in the pattern checker.

13. An Optimized Self-Test Function for 64b/66b PCS (Pat Thaler)
http://www.ieee802.org/3/ae/public/mar01/thaler_1_0301.pdf

Ms. Thaler is also concerned with the current Test Patterns in the draft standard. This pattern repeats every 0.21 seconds however it is not compatible for other 64b/66b

receivers not in self-test mode. The seed values can be changes to lower the test time below 2 10th of a second. Pat felt this proposal optimizes gate count and complexity by reusing existing circuits. They are proposing a 64b/66b Local Fault frame be used for the test pattern

14. Programmable Pattern Generator for 10GBASE-R/W (Jonathan Thatcher)
http://www.ieee802.org/3/ae/public/mar01/thatcher_1_0301.pdf

Mr. Thatcher temporarily stepped down from his chairmanship during this presentation. Jonathan proposed this be programmable because we don't know the ideal pattern today for stressing the system. This flexible solution (i.e. programmable test pattern) will allow researchers to build on test patterns we select now to optimize testability later. The concept of allowing for multiple sub-patterns was proposed to build an overall pattern length. There would be MDIO provisions for placing the device in Normal or Test modes. A conceptual implementation / state diagram for the pattern generator was presented.

15. Jitter Ad-Hoc Update (Bill Rysen)
Presentation was not submitted for posting?

Mr. Reysen reported that his objectives for this week have been met. A clause 52 jitter draft is in circulation. The two significant accomplishments were 1; to pass a motion that accepts the proposed jitter methodology and text 2; to form an Ad-hoc to propose alternative jitter test patterns based on the 58 bit scrambler by the May 802.3ae interim meeting. This work closely parallels the work done in Fiber Channel in particular MJS.