P802.3ae Interim PMD Track Report

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New Orleans
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11 Presentations

- Dispersion Penalty for Single-Mode Serial PMDs—Peter Ohlen
- OMA for Single-Mode Serial PMDs—Peter Ohlen
- 1310 nm Serial Eye Mask and Jitter—Piers Dawe
- Recap: Enhanced Link Budget Spreadsheet—Piers Dawe
- Tutorial on MIB/MDIO—David Law
- Comments on Serial PMD Optical Specs—Marc Verdiell
- OMA and Extinction Ratio for Serial PMDs—Marc Verdiell
- Implementation of SiGe IC Solution for 10G Equalization of PMD (Polarization Mode Dispersion)—Henning Bülow
- Similarities of PMD and DMD for 10 Gb/s Equalization—Moe Win
- 10 Gb/s MMF Transmissions over any (Loss limited) distances using Adaptive Equalization Techniques—Fow-Sen Choa (presented by Vipul Bhatt)
- DSP-Based Equalization for Optical Channels—Oscar Agazzi

Clause Review

- Reviewed clauses 51, 52 and 54
- Generally feeling is that 1310 WWDM, 1310 serial and 850 serial are solid
- 1550 serial needs some work
  - What distance do we want to support
  - Are there optical amplifiers in the link
  - Will probably split 1310 and 1550 specs into two similar sub-clauses with their own tables

Big Ticket Items

- Jitter specifications and methodology
  - Test patterns--do we force a repetitive pattern out of the scramble?
  - Can we measure DJ w/scrambled code
  - TX eye mask
  - Jitter budget--will it be different for the various types of PMDs
  - Magnitude of DCD for 10 GbE

- Polarization Mode Delay
  - PMD may be a major issue similar to DMD in 1 GbE
  - Unknown at this point how many fibers have problems
  - Distribution is Maxwellian not Gaussian
  - Bad fiber was installed between 1984 and 1992

Big Ticket Items (cont)

- Signal detect
  - One for all wavelengths or one for each ë
  - How is it reported to upper layers, pin, register?
  - Time constraints

- Support of both WAN & LAN speeds with same PMD specs

- 1550nm model needs more work/verification

- PMA_TX_CLK & PMA_RX_CLK specifications
  - Do we spec variance, total delay and jitter from source clock to tx clk
  - Is the source clock the same system clock as the upper layers

Other Issues

- Chirp measurement, specification and budget
- Optical Modulation Amplitude (OMA) numbers
- Link budget
  - Laser safety (max power)
  - Attenuator (1550 nm Serial)
- MDI—Duplex SC connector is in D1.0
- Management register usage
- What is the PMA for WWDM?
- Serial PMA—OIF sends b15 first whereas Ethernet sends b0 first

PMD Track Motion #1

Move that the P802.3ae PMD Sub Task Force adopt and recommend that P802.3ae adopt the model structure and equations version 2.3.4 as found in the spreadsheet http://www.ieee802.org/3/10G_study/public/email_attach/3pmd046.xls, but note that the MPN calculation is believed to be pessimistic and is under active review, and that the effect of transmitter chirp is not well covered.

Moved: Piers Dawe   Technical: >75%
Second: Petar Pepeljugoski   Y: 75   N: 1   A: 10   **PASSES**

Other Actions

- Equalization ad hoc started
  - 25 members participating (Optics → DSP)
  - Working on PMD & DMD
  - WG ballot will be decision point on feasibility report
  - Will liaison with TIA FO 2.2 for a part of experimental work

- Requesting 10GEA set up meeting in late Oct to discuss jitter issues

Motion

Move that the P802.3ae TF adopt the model structure and equations version 2.3.4 as found in the spreadsheet http://www.ieee802.org/3/10G_study/public/email_attach/3pmd046.xls, but note that the MPN calculation is believed to be pessimistic and is under active review, and that the effect of transmitter chirp is not well covered.

Moved: W. Thirion   Technical: >75%   **Passed**
Second: D. Cunningham   Y: N: A: **by Acclamation**