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# High Speed Study Group

## Fiber Optic Adhoc Report

March 2007

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Representing

**ProCurve Networking by HP**

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Two teleconferences Since January:

<http://www.ieee802.org/3/hssg/public/foah/docs.html>

- February 8<sup>th</sup> – 2 hours
  - 11 attendees
  - 3 presentations
    - Comb Based WDM for 100GE Applications – Ellis
    - 100GE SMF Optical Interface Study Alternatives – Cole
    - Reach Feasibility of 1550nm DML for 10G+ - Tsumura
- February 28<sup>th</sup> – 2 hours
  - 16 attendees
  - 5 presentations
    - 100GE - 10/40km Economic Feasibility - Network Provider View Ralf-Peter Braun
    - DML Technology and Costs Martin Schell
    - DQPSK / TDM Technology and Costs Martin Schell
    - HSG DML MZ cost worksheet Martin Schell
    - Reach (Technical) Feasibility of 100GE alternatives Chris Cole
  - Motion to adopt Tech/Economic Feasibility Table as HSSG-FOAH Working Table – Passed by affirmation

## HSSG-FOAH Working Table: Reach (Technical) Feasibility of 100GE alternatives

SMF	10km 1310nm	40km 1310nm	10km 1550nm	40km 1550nm
10x10G DML	yes (10λ span needs semi-cooling)	yes (need new DML & RX APD/SOA)	yes (need new DML)	maybe (need new DML)
10x10G ML	yes	yes (need RX APD/ SOA)	yes	yes
5x20G / 4x25G DML	yes (need new DML)	maybe (need new DML & RX SOA)	maybe (need new DML)	no
5x20G / 4x25G ML	yes (need new EML)	yes (need new EML & RX SOA)	yes	yes (need RX DC)
2x50G DQPSK ML	yes (need I/Q ML)	yes (need I/Q ML & RX DC & SOA)	yes (need I/Q ML & RX DC)	yes (need I/Q ML & RX DC)
1x100G TDM ML	yes (need new ML & maybe RX DC)	yes (need new ML & RX DC & SOA)	yes (need new ML & RX DC & SOA?)	yes (need I/Q ML & RX DC & SOA?)

Green shading designates alternatives under detailed study by Fiber Optic Ad Hoc contributors.

HSSG-FOAH Working Table:

**Cost (1/Economic Feasibility) of 100GE alternatives**

SMF	10km 1310nm	40km 1310nm	10km 1550nm	40km 1550nm
10x10G DML	mid	mid	low	mid
10x10G ML	mid	mid	mid	mid
5x20G / 4x25G DML	low	mid	low	not feasible
5x20G / 4x25G ML	mid	mid	mid	not economically feasible (RX DC)
2x50G DQPSK ML	high	not economically feasible (RX DC)	not economically feasible (RX DC)	not economically feasible (RX DC)
1x100G TDM ML	high (RX DC?)	not economically feasible (RX DC)	not economically feasible (RX DC)	not economically feasible (RX DC)

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Wrap Up:

Significant discussion on the single-mode alternatives

Clear consensus within the adhoc that technical and economic feasibility are achievable

Some comparative data on cost difference between 10G and 100G has been provided, however more specific data on system cost is anticipated to demonstrate economic feasibility at this week's meeting.

Thank you!