



400Gb/s 2km SMF PMD Considerations

P802.3bs 400 Gb/s Ethernet Task Force

IEEE 802 Plenary Session

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Waikoloa, HI

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Supporters

End Users:

- Ralf-Peter Braun, Deutsche Telekom
- Martin Carroll, Verizon
- Derek Cassidy, ICRG
- Jorge Salinger, Comcast
- Yoshiaki Sone, NTT

System OEMs:

- Peter Anslow, Ciena
- John D'Ambrosia*, Dell
- Mike Dudek, QLogic
- Joel Goergen, Cisco
- Scott Kipp, Brocade
- Jon Lewis, Dell
- David Ofelt , Juniper
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- Steve Trowbridge, ALU

* Contributed to reaching presentation consensus but has taken no position on presentation recommendations .

Supporters

Test Equipment:

- Thananya Baldwin, Ixia
- Jerry Pepper, Ixia
- Paul Brooks, JDSU
- Pavel Zivny, Tektronix

Suppliers:

- Vipul Bhatt, Inphi
- Sudeep Bhoja, Inphi
- William Bliss, Broadcom
- Matt Brown, Applied Micro
- Dan Dove, Dove Networking Solutions
- Ali Ghiasi, Ghiasi Quantum LLC

Suppliers:

- Mark Gustlin, Xilinx
- Eric Hall, Aurrion
- Kiyohisa Hiramoto, Oclaro
- Jonathan Ingham, Avago
- Kenneth Jackson, Sumitomo
- Jonathan King, Finisar
- Paul Kolesar, Commscope
- Robert Lingle, OFS
- Vasudevan Parthasarathy, Broadcom
- Ted Sprague, Infinira
- Steven Swanson, Corning
- Andre Szczepanek, Inphi
- Kohichi Tamura, Oclaro
- Ed Ulrichs, Source Photonics
- Brian Welch, Luxtera

Pittsburgh Status

Solid support for PAM4

Straw poll #2: I would support a PAM4 based baseline solution for all SMF reach objectives.

Y/N/A: 74/25/7

Motion #9: Move to adopt PAM4 as the modulation format for the SMF (single mode fiber) PMD objectives. Y/N/A: 74/27/15 (just failed)

Solid support for 10km and 500m SMF approaches

Motion #10: Move to adopt 8x50G PAM4 as the modulation format for the 10km SMF (single mode fiber) PMD objective. Y/N/A: 86/24/12 (passed)

Motion #12: Move to adopt 4x100G PAM4 PSM4 as the modulation format for the 500m SMF (single mode fiber) PMD objective. Y/N/A: 66/5/37 (passed)

Adopted the first SMF baseline

Motion #11: Move to adopt a baseline for the 10km SMF PMD objective based on the 10km proposal in cole_3bs_01a_0515. Y/N/A: 62/6/34 (passed)

We ran out of time to accomplish more before the meeting adjourned

Presentation Objective

The goal of this presentation is to recommend a path forward for the 2km reach SMF objective to progress the project.

Key assumptions:

- It is anticipated the 4x100G PAM4 for 500m PSM4 baseline will be adopted considering strong support by TF in Pittsburgh
- Need to resolve Pittsburgh straw polls which showed 2km objective had two dominant proposals:

Straw Poll #9: I would support a motion to adopt a baseline for the 2km SMF PMD objective based on the 2km proposal in cole_3bs_01a_0515. (8x50G PAM4 WDM) [Y/N/A: 43/37/20](#)

Straw Poll #11: I would support a motion to adopt a baseline for the 2km SMF PMD objective based on lewis_3bs_01a_0515. (4x100G PAM4 WDM). [Y/N/A: 36/37/31](#)

Recommendations

- Adopt 2km 8x50G PAM4 WDM in P802.3bs for the 2km SMF PMD objective to address time-to-market.
- Use 500m 4x100G PAM4 PSM4 standards and technology development effort to advance 4x100G PAM4 WDM duplex SMF technology including components, testing methodologies and specifications.
- Propose 4x100G WDM duplex SMF PMD in a future 802.3 project when the required component technology matures.



Thank You