SMF Ad Hoc report

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Introduction

The 40 Gb/s and 100 Gb/s Fiber Optic Task Force SMF Ad Hoc has:

- Held two conference calls since the Geneva meeting:
  - 23 October 2012
  - 30 October 2012

- Reviewed 5 presentations:
  - 40km Link budget suggestion cheng_01_1012_smf
  - Distribution of link lengths & Connectors Number huang_01_1012_smf
  - 40GBASE-ER4 link coverage anslow_01a_1012_smf
  - Improved MPI “Upper Bound” Analysis farhood_01a_1012_smf
  - Installed link return loss anslow_02_1012_smf

- Meeting minutes and presentations can be found at:
  - http://www.ieee802.org/3/bm/public/smfadhoc/meetings/index.html

40GBASE-ER4 budget

cheng_01_1012_smf and huang_01_1012_smf proposed to increase the value of the maximum channel insertion loss for 40GBASE-ER4 from 18.5 dB to 19 dB.

anslow_01a_1012_smf provided an analysis of installed link data from 8 operators that suggested this would increase the coverage from 79% to 89% of these links between 10 km and 40 km.

For comparison, the maximum channel insertion loss from the 10GBASE-ER budget would cover roughly 83% of these links.

An increase in coverage for this “Engineered link” has to be weighed against the increase in module cost due to the increase in budget. Two opinions were expressed that 18.5 dB is already a challenging requirement, especially if it is desired to meet the budget without a retimer in the module.

MPI

farhood_01a_1012_smf contained an improved MPI “Upper Bound” analysis with the intent to derive a “statistical upper bound to measure the MPI impact on various PAM modulation schemes”

anslow_02_1012_smf provided measurements of the return loss of installed links which suggested that a typical connector reflectance may be somewhat worst than the -35 dB specification.

This analysis is ongoing.

Future meetings

The Task Force has an objective:

Define a 100 Gb/s PHY for operation up to at least 500 m of SMF

The Distinct Identity response contains:

6. The amendment will enable new PHY types over SMF which consist of the existing 100GBASE-LR4 and 100GBASE-ER4 optical PMDs with four electrical interconnect lanes in each direction.
   The amendment will define a new 100 Gb/s SMF PMD in addition to these if it can be shown that a SMF PMD with a shorter reach than 100GBASE-LR4 has sufficient cost, density, or power difference to justify an additional SMF PMD type.

Presentations aimed at reaching consensus on a baseline proposal targeted at meeting this objective would be appropriate for future SMF Ad Hoc meetings.

Thanks!