

A single wavelength, single fibre PMD for P2P applications: A Baseline Proposal

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Supporters

Bartur, Meir – Zonu

Brand, Richard – Nortel Networks

Cannata, Mark – Marconi

Effenberger, Frank – Quantum Bridge

Ivry, Raanan – Broadlight

Jönsson, Ulf - Ericsson

Kleiner, Norbert – Motorola

Lavasani, Javad – Maxim

Mc Cammon, Kent – SBC

Myers, Brock - Harmonic

Peng, Lisa – Corning

Radcliffe, Jerry – Hatteras Networks

Rotenstein, Sergiu – nBase

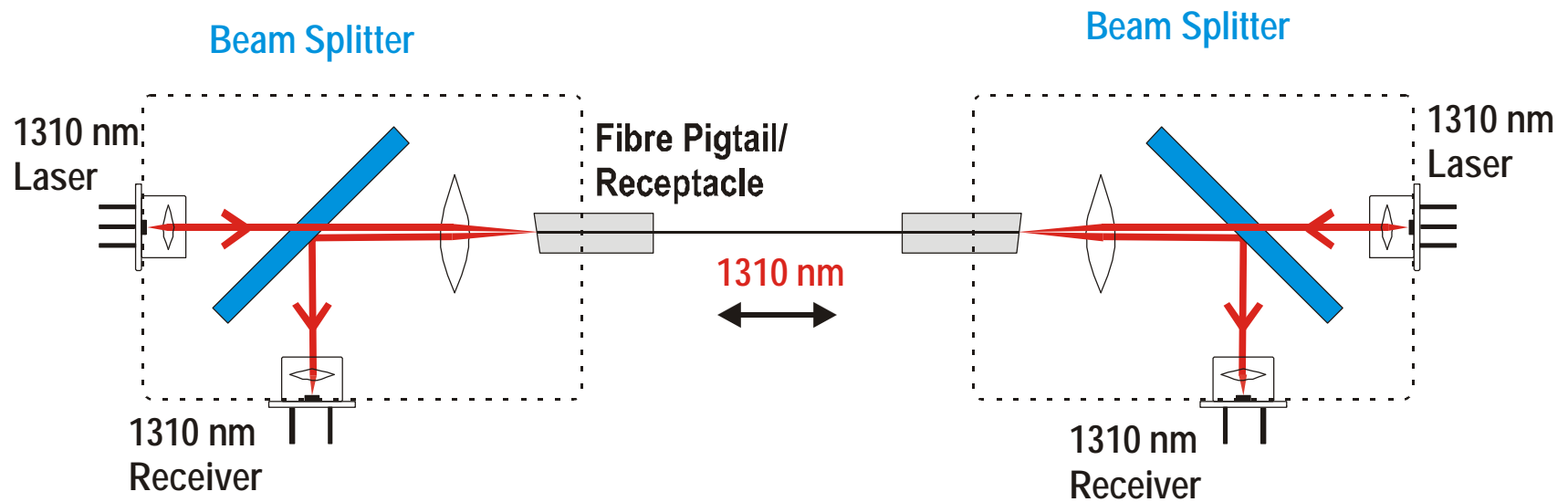
Stiscia, Jim – Virata

van Veen, Dora – Lucent

Vloothuis, Ger – PBN

Recap

A single wavelength 1310/1310 nm PMD for both ONU and OLT



Power Budget

Various power penalties for a 10 km, 1.25 Gbps P2P link:

| | |
|------------------------|-----------|
| Fibre attenuation / dB | 5 |
| Connector / dB | 2 |
| Dispersion / dB | 2 |
| Other / dB | 1 |
| Total / dB | <u>10</u> |

Reflection Issues

Two requirements of the PMD are that an open connector reflection (14 dB) any distance from the PMD does not cause a spurious SD_{Assert} and with a functioning link, that opening a connector anywhere in the fibre (14 dB ORL) will trigger a $SD_{Dessert}$.

These points are addressed in other technical presentations¹

¹ Presentations from Meir Bartur and Tom Murphy

PMD Specification

| Description | ONU/OLT Module | Unit |
|--|-------------------------|-------|
| Transmitter Type | Bi-directional, 1 fibre | |
| Signaling speed | 1.25/0.125 | GBd |
| Link length (range) | 0.5 to 10,000 | m |
| Power Budget | 10 | dB |
| Wavelength (range) | 1270 to 1360 | nm |
| $T_{\text{rise}}/T_{\text{fall}}$ (Max, 20%-80% response time) | 0.26 | ns |
| RMS spectral width (max) | 2.4 | nm |
| Average launch power (min) | -9 | dBm |
| Average launch power (max) | -4 | dBm |
| Extinction ratio (min) | 9 | dB |
| RIN (max) | -120 | dB/Hz |
| Receiver sensitivity (min) | -19 | dBm |
| Return loss of ODN (min) | 20 | dB |
| Return Loss of module (min) | 18 | dB |