# 100Mbps over Dual SMF

## Baseline proposal

(Outcome of 100M ad hoc group discussions)

IEEE 802.3ah Interim

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# Supporters

| | |
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| Thomas Murphy | Infineon |
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# General

- 100 Mb/s Dual SM Fiber Operation
- Base on SONET OC-3 IR-1 / SDH STM-1 S-1.1 standard with appropriate modifications
- No new signaling
  - 100BASE-X PCS & PMA assumed (Clause 24)
  - Retain all state machines, 4B/5B coding etc. of 100BASE-X
- The service interface shall be identical to 100BASE-FX
- Specify the parameters to allow for a wide temperature range

# Fiber Cable Plant Properties

| Description | Value | Unit |
|---|---|---|
| Operating distance | 10 | km |
| Duplex operation | 2 fibers | |
| Fiber type | 10µm SMF[a] | |
| Link power budget | 10 | dB |
| Fiber cable attenuation (max) | 0.5 | dB/km |
| Connector and splice losses (max) | 2 | dB |
| Connection return loss (min) | 26 | dB |

[a]Standard SMF (G.652)

# Tx Characteristics

| Description | Value | Unit |
|---|---|---|
| Signaling speed | 125 ± 100 ppm | MBd |
| Wavelength (range) | 1260 to 1360 | nm |
| $T_{rise}/T_{fall}$ (max, 20%-80% response time) | 2.6 | ns |
| RMS spectral width (max) | 7.7 | nm |
| Average launch power (min) | -15 | dBm |
| Average launch power (max) | -8 | dBm |
| Launch OMA (min) | .03785 | mW |
| Extinction ratio (min) | 6 | dB |

# Rx Characteristics

| Description | Value | Unit |
|---|---|---|
| Signaling speed | 125 ± 100 ppm | MBd |
| Wavelength (range) | 1260 to 1360 | nm |
| Receiver sensitivity (min) | -25[b] | dBm |
| Average receive power (max) | -8 | dBm |
| Receiver OMA (min) | .00379 | mW |
| Bit error rate (max) | $10^{-12}$ | |
| Return loss of module (min) | 12 | dB |

[b]The Rx sensitivity includes the ER penalty

# Eye Pattern Mask

- An eye pattern mask shall be defined
- Details TBD

# Jitter Budget

- Ethernet oriented jitter methodology
- Details TBD

# Parameters Not to Specify for PMD

- Environmental properties
  - Should be addressed in an informative annex (according to Motion #11, March EFM meeting)
- Electrical and geometrical properties
  - Are covered by MSA's or standardized elsewhere (1x9, SFF, SFP,…)
- Optical connector type
  - Connectors approved by other appropriate bodies, e.g. FOCIS, should be compliant