TIA FO-2.2.1
May 23, 2000 Update

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Chair, TIA FO-2.2.1

Task Group on Modal Dependence of Bandwidth

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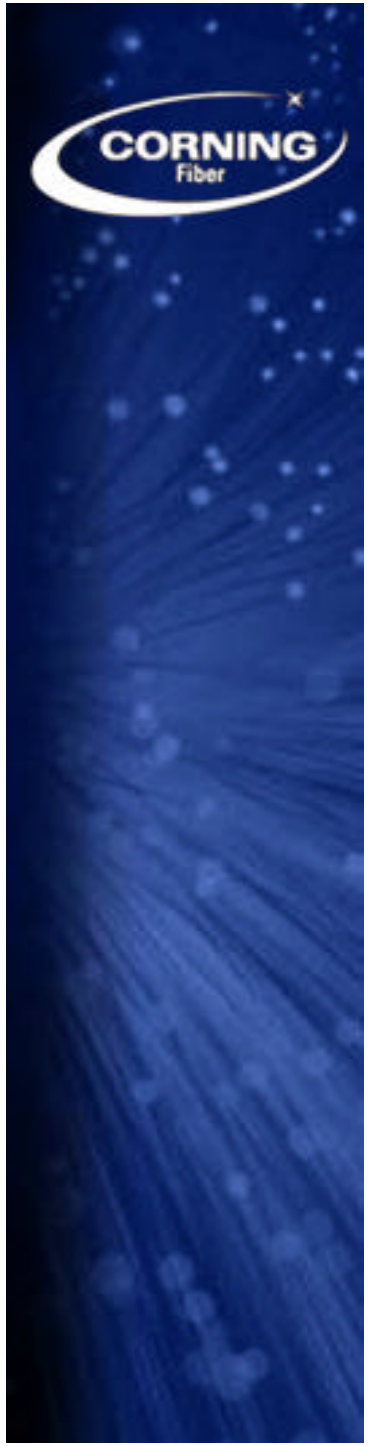


62.5 μm Multimode Fiber Development Completed

- **Methodology demonstrated which allows risk assessment**
  - **Enhanced performance demonstrated by combination of**
    - **RML bandwidth (per FOTP 204 - 23.5 mm launch) and**
    - **Encircled flux (per FOTP 203)**
- **Validation experiment risk assessment determined to be negligible**
  - **Results presented at 5/11/00 meeting**

Validation Experiment Conclusion

- Enhanced performance can be achieved
  - 1 Gigabit Ethernet operation
  - 62.5 mm fiber
  - 500 m
- Through a combination of
  - Transmitters which have encircled flux
    - ³75% within 30 mm diameter and
    - £25% within 9 mm diameter and
  - Fiber which has RML bandwidth ³385 MHz-km
- Producing EMB ³385 MHz-km

62.5 μm Multimode Fiber Wrap up

- **Documentation of recommendation begun**
  - **TIA TSB author identified (John Schlager - NIST) and draft begun**
  - **FOTPs in final stages of balloting**

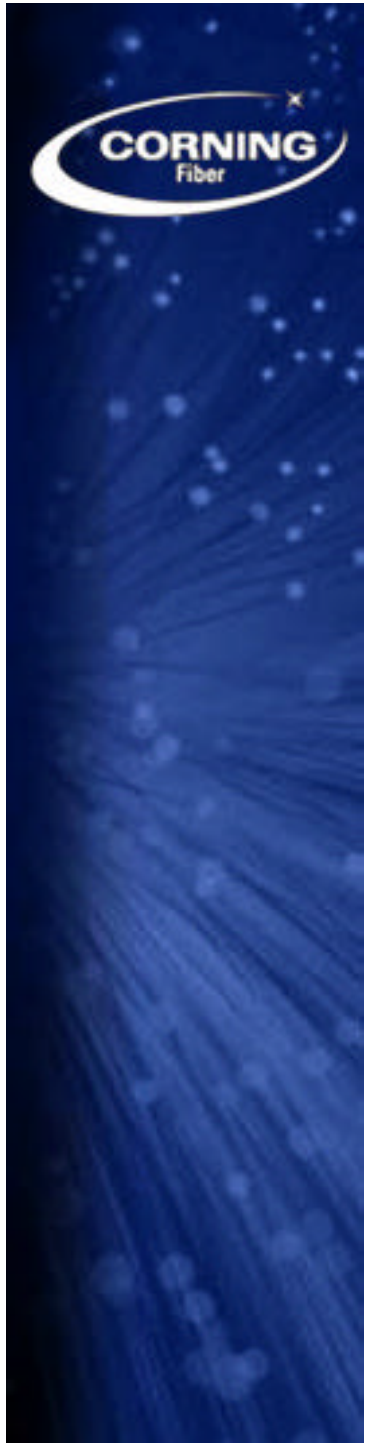
- **TIA FO-2.2.1 now focused on 50 μm development**
  - **62.5 μm development effectively completed**

Next Generation 50 μm Multimode Fiber Development Progressing on Schedule

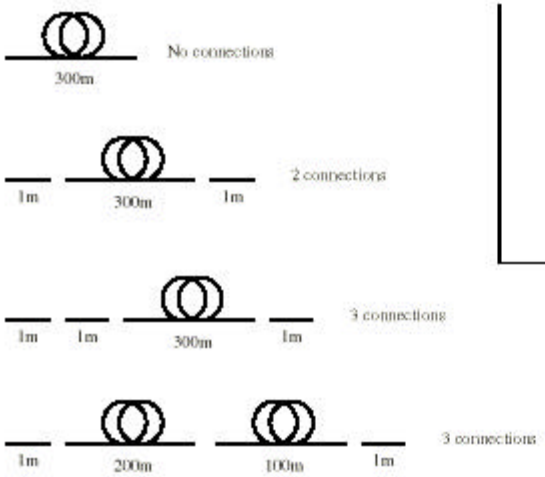
- **Activity on track to deliver a recommendation consistent with IEEE 802.3ae timing**
  - **Fiber performance measurement (11/00)**
  - **Transceiver launch requirement (11/00)**
  - **Document enhanced system performance recommendation (5/01)**

Next Generation 50 μm Multimode Fiber Development Status

- Draft proposal under consideration
  - Fiber characterization to control maximum allowable DMD range
  - Source launch requirement to minimize launch spot size
- Modeling demonstrates “sweet spot”
  - Includes impact of connector offset
- System test plan under development



50 mm Multimode Modeling Connection Configuration

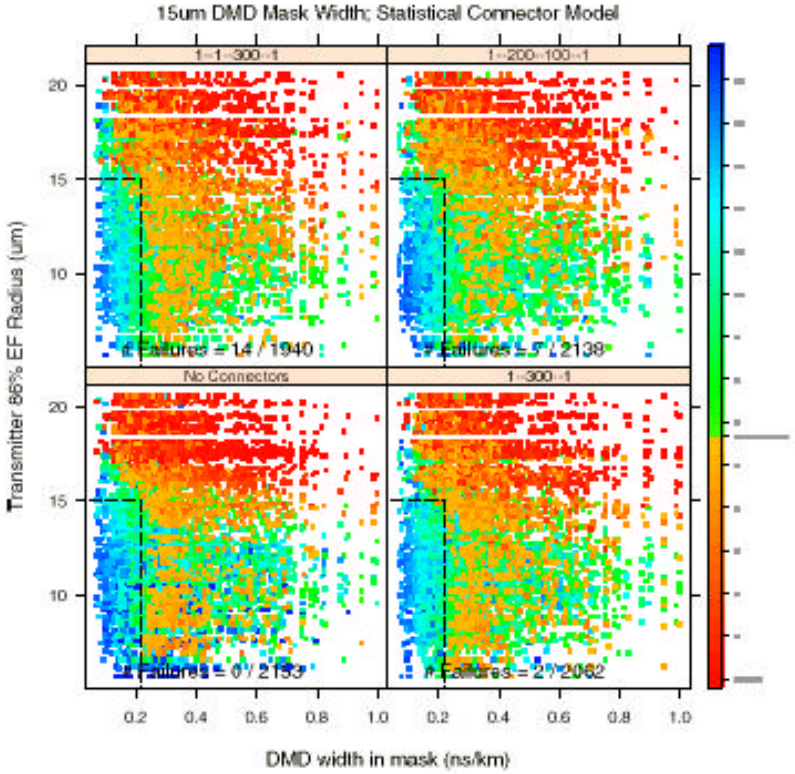


- Mean connection loss chosen to be 0.3dB (std dev 0.2dB) = 4.8μm mean offset (std dev 1.9μm)
- Buckler model relates empirical loss to offset for 50μm fiber

Modeling results courtesy Steve Golowich, et. al., Lucent

50 mm Multimode Modeling

- **Blue region shows “sweet spot”**
- **Large number of permutations evaluated**



Modeling results courtesy Steve Golowich, et. al., Lucent

TIA FO-2.2.1 Summary

- **62.5 μm**
  - **Recommendation complete and final documentation in progress**
- **50 μm**
  - **Proposal drafted**
  - **Powerful modeling tool available to direct development and validation**
  - **Development on schedule**