Optical Communications

Laboratory experiments

Tuesday, May 20, 2014

Testbed

LINK B

ATT-COM

DEMUX

FIBER 10km

ATT-λ_1

TO RX

AFTER DEMUX

MUX

ATT-λ_2

BEFORE MUX

FROM TX

BEFORE MUX
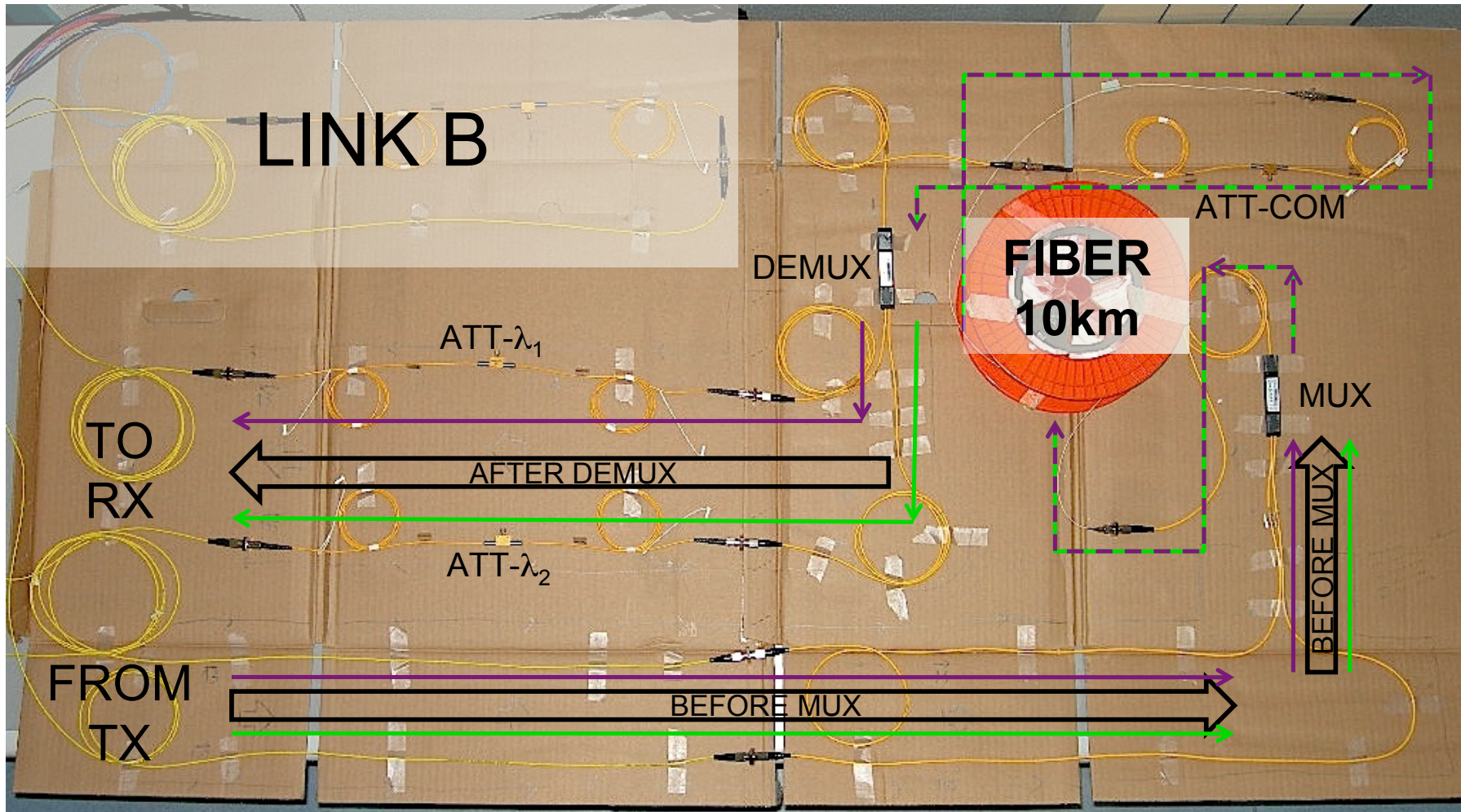
LINK A

Testbed Components (1)

- Transmitter/Receiver
  - Intel Ethernet Network Adapter X520-DA2
    - Chipset:
      - Intel 82599 10 GbE Controller
        - IEEE 802.3ae
    - Transceivers:
      - LC connectors
      - DFB laser
      - Finisar FTLX1471D3BCV
        - 1310nm (λ_1)
      - Finisar FTLX1671D3BCL
        - 1550nm (λ_2)

Testbed Components (2)

- SM Variable Attenuators
  - 1310/1550 nm
  - FC/PC Connectors
- Wavelength Division Multiplexers (WDMs)
  - 1310/1550 nm
  - FC/PC Connectors
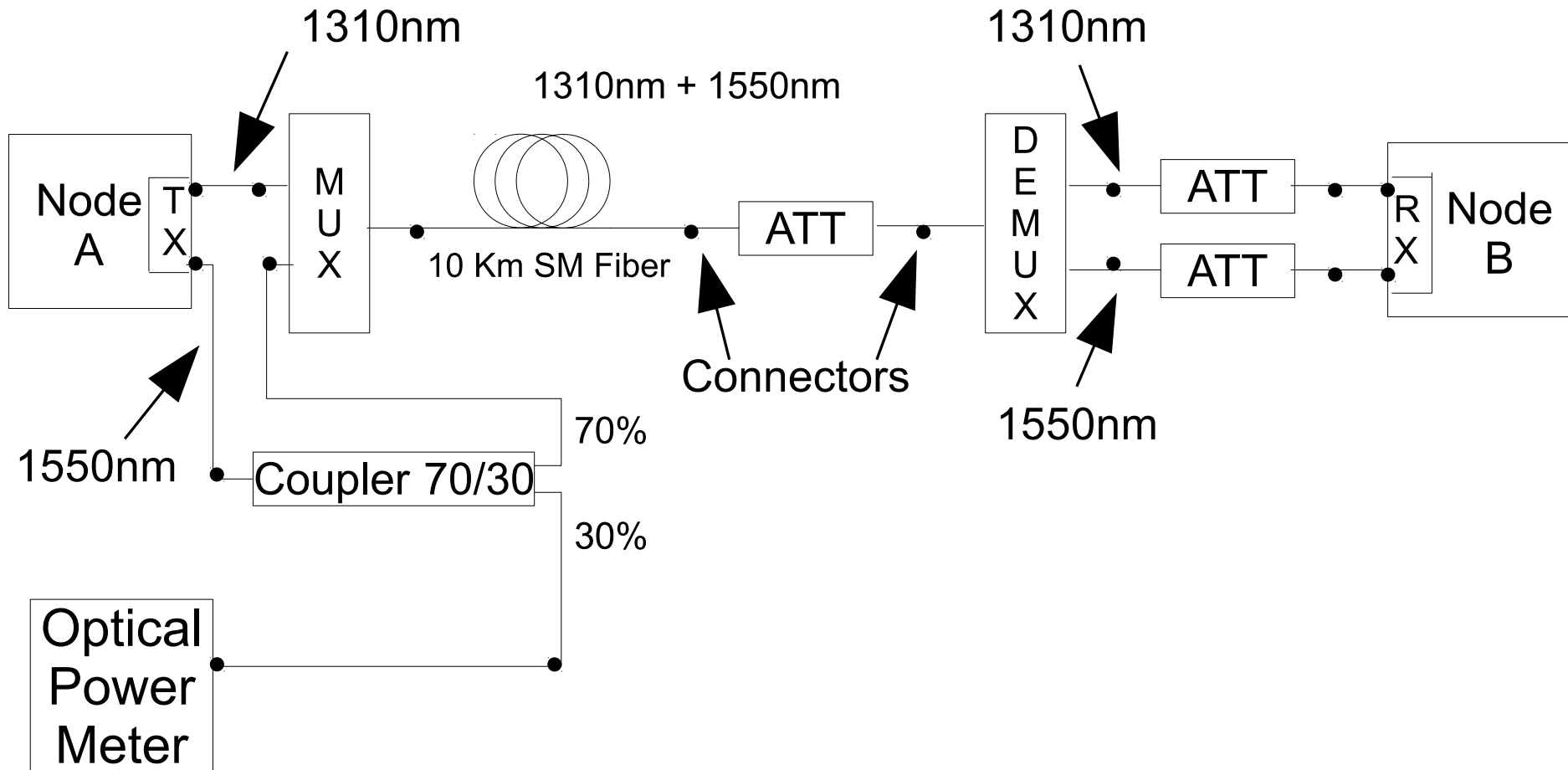- 10 Km SM fiber link

Schematic Diagram
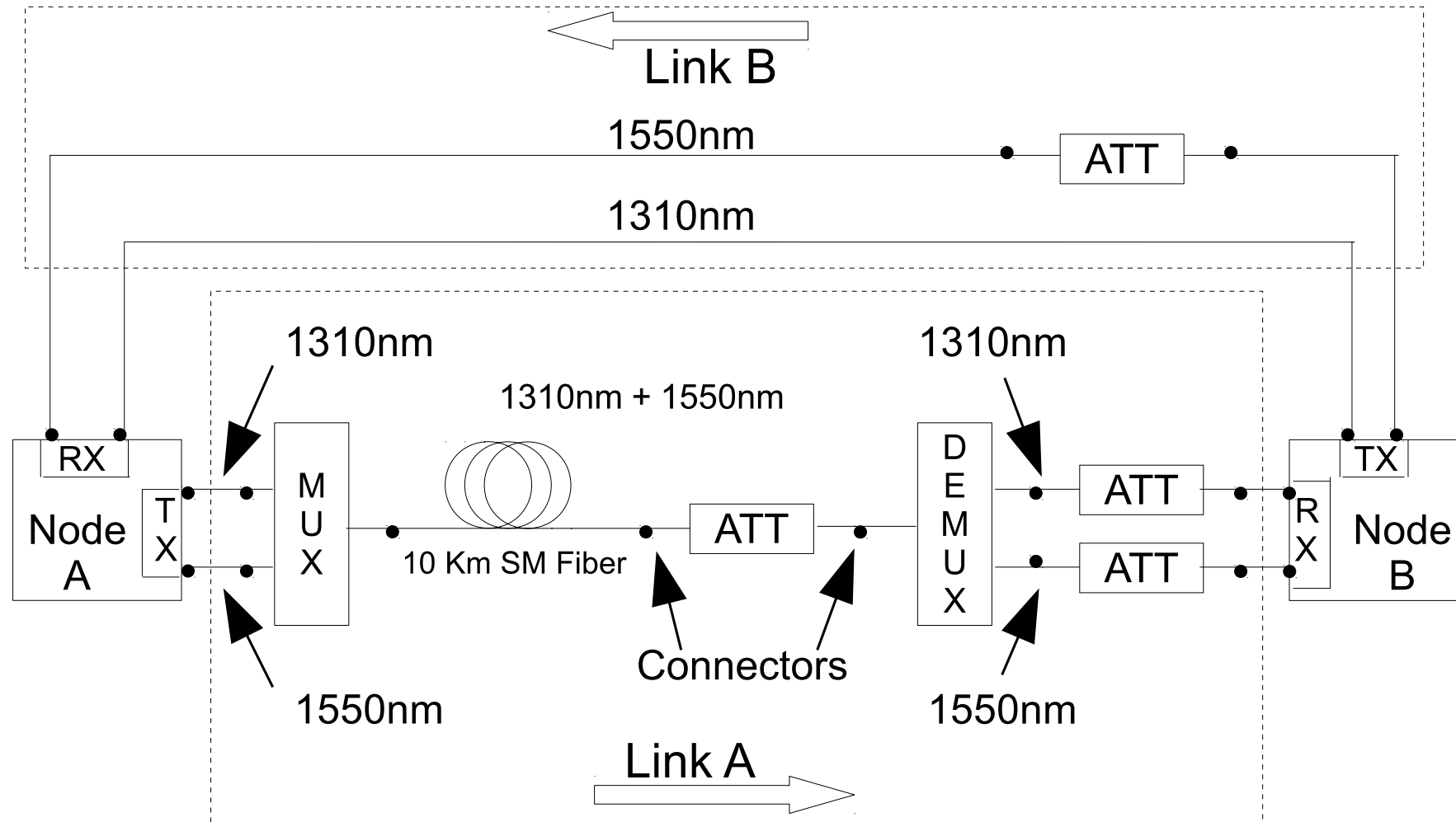
- Link B not used during experiments. Required for NICs configuration and auto-negotiation process
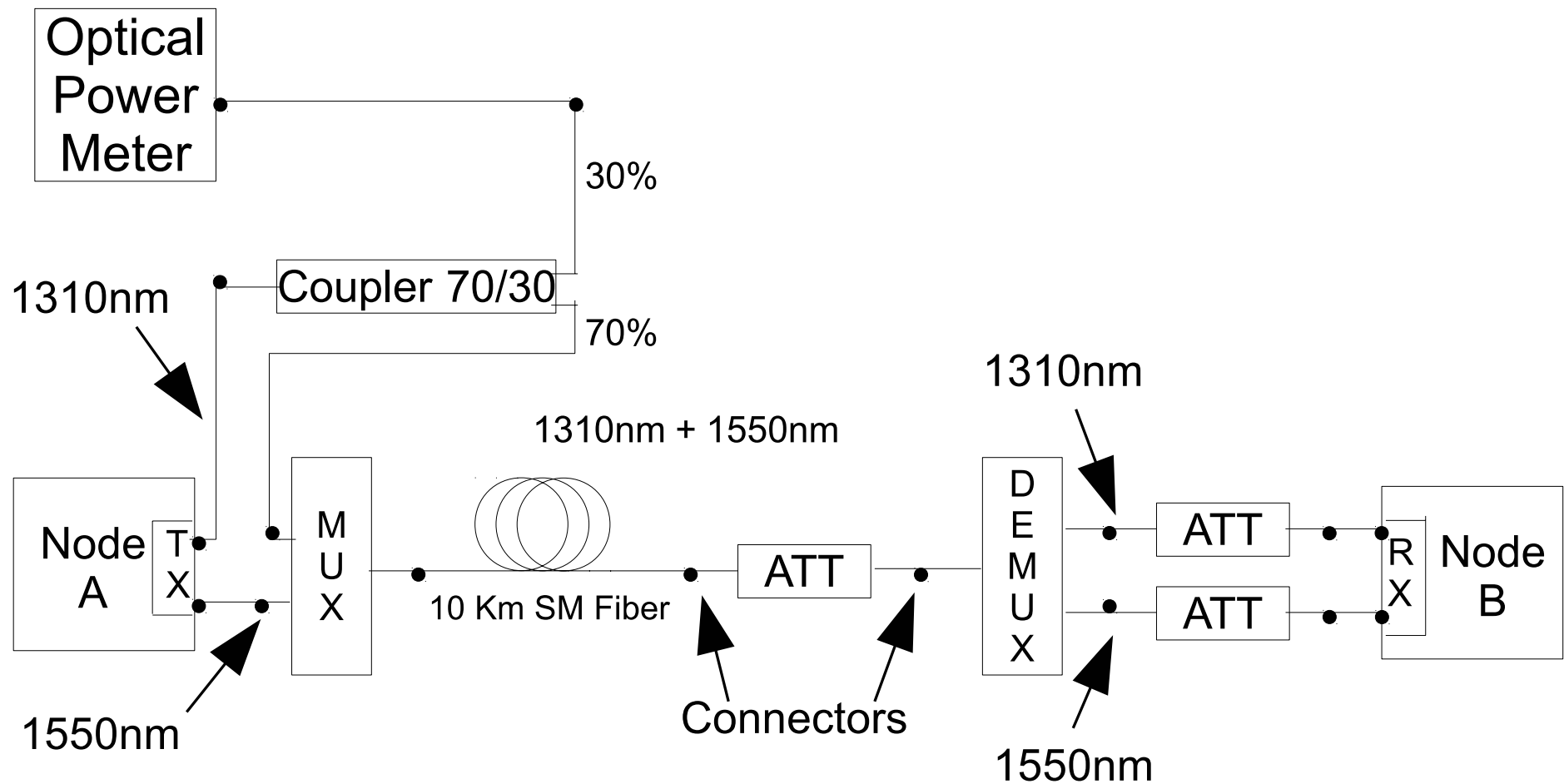
Experiments List

- Setup 1: measure of the average TX power

- Setup 2: measure of link A total attenuation (excluding last attenuator)

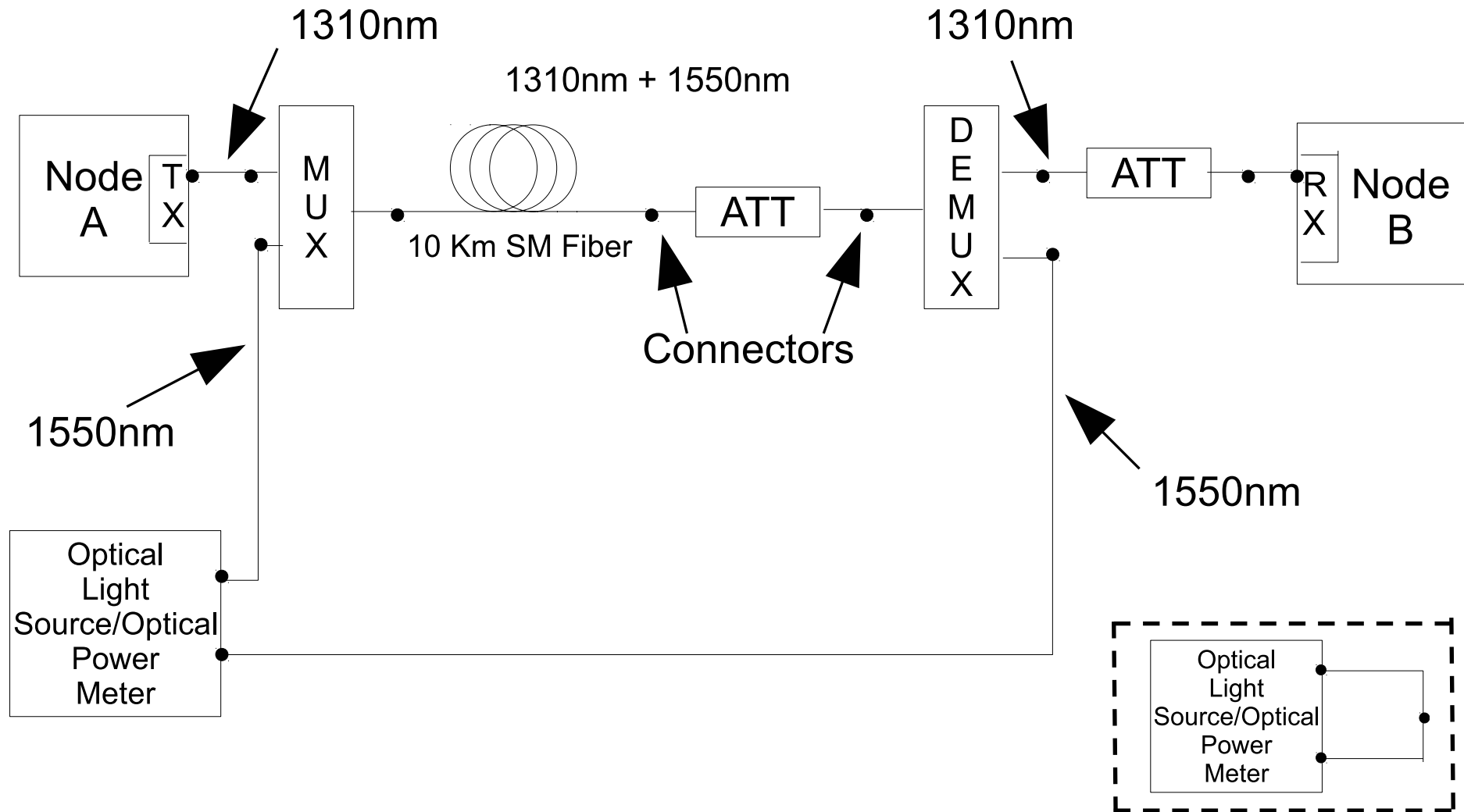- Setup 3: measure of throughput/BER (1310nm link) as a function of link A attenuation
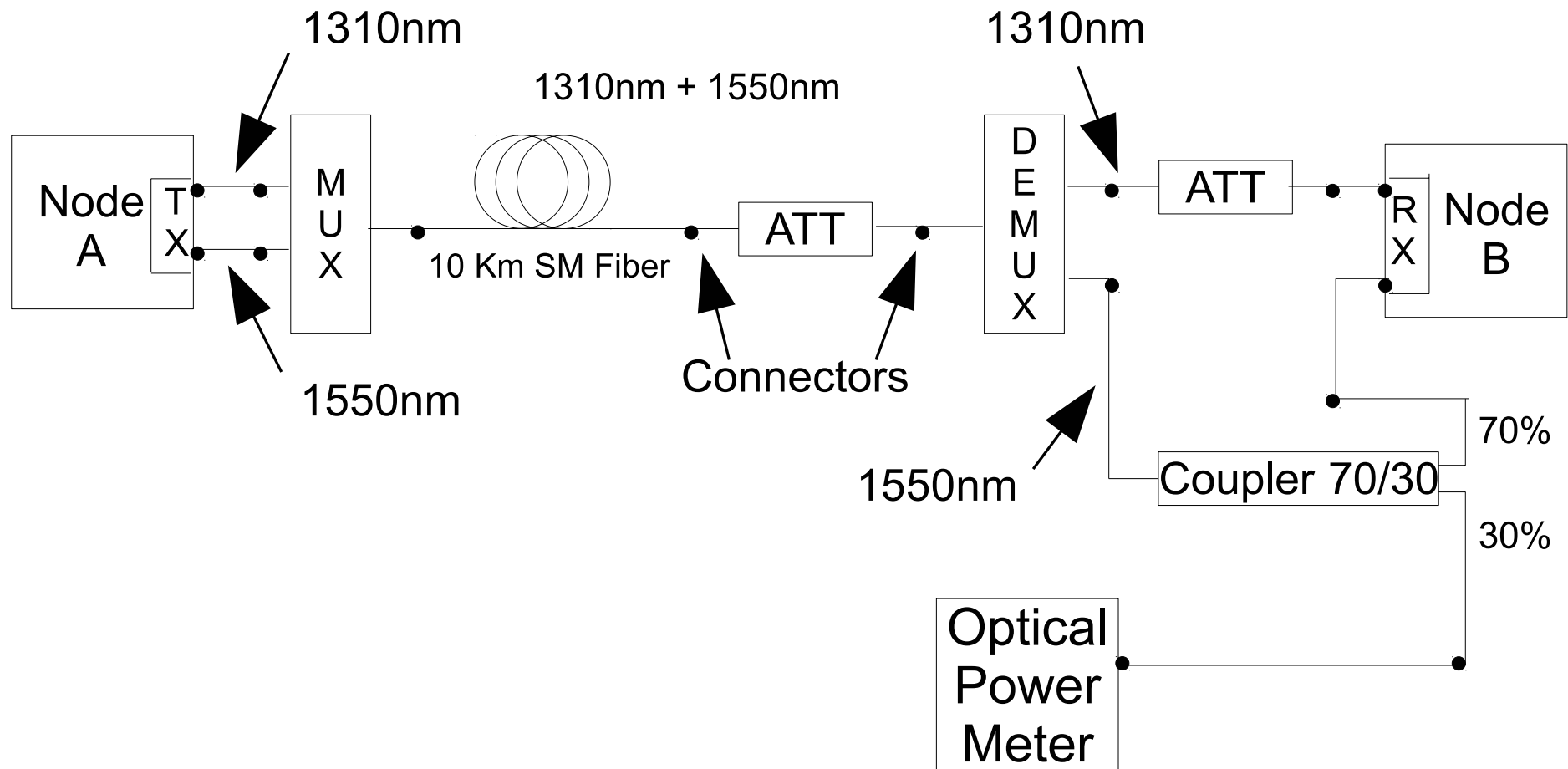
Setup 1 (1550nm)

Setup 1 (1310nm)

Setup 2

Setup 2 (Method 2)

Setup 3