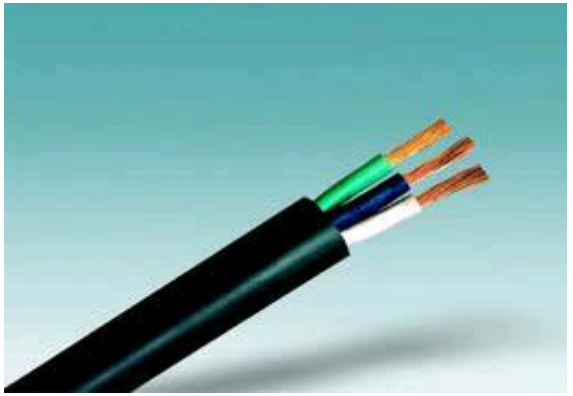
Basic Fiber Knowledge

Copper and Glass

Copper

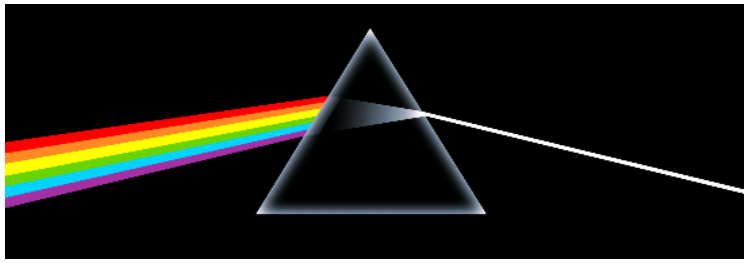
- Expensive metal
- Cannot reach really far
- More distance comes with less speed
  - 20mbit ADSL goes up to 2km
  - 1G goes up to 500meter

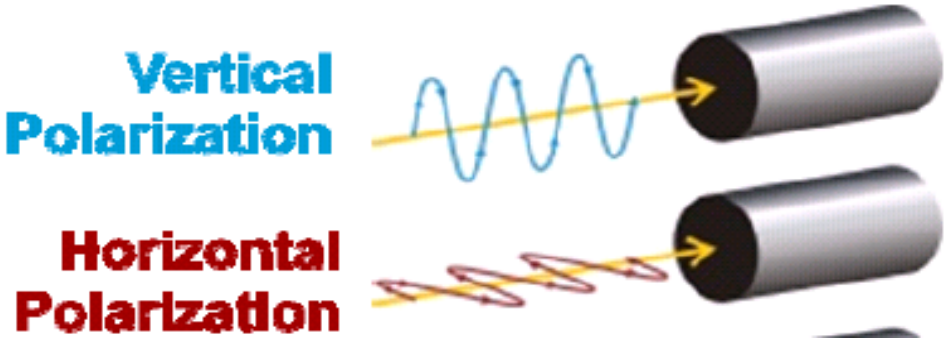


Copper and Glass

Copper / Fiber

- Unlimited data
  - Different colors (CWDM / DWDM)
  - Different speed (100mbit/1G/10G/40G)
  - Different angle (for the future)

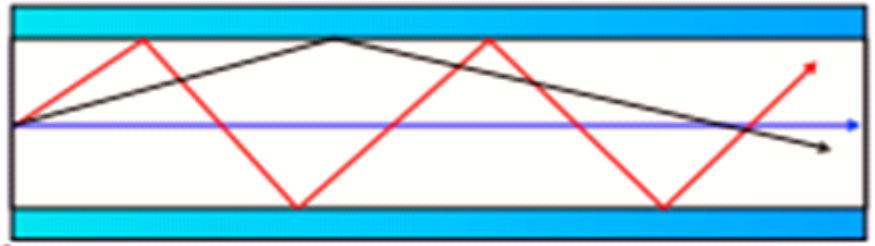




Fiber Type

Fiber Type Multimode

- It started with Multimode
- Thicker core (62.5/125 50/125) OM-1/OM-2/FDDI
- Orange Cables
- Can use simple lasers (= cheaper price) the SR / SX
- Cannot reach really far 500 meter
- Still a lot in universities / LRM optics



Fiber Type

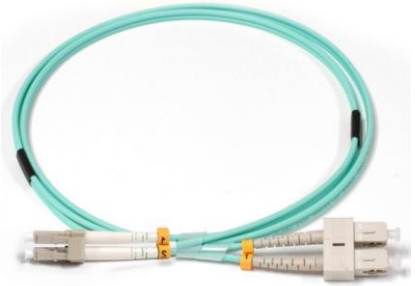
Fiber type Single Mode

- Single Mode is 9 µm thick (human hair 25)
- yellow Cables / moves straight / less dB/km
- Is getting more common(one fiber type in datacenter)
- All the Dark fiber is Single Mode

Fiber Color

Multimode OM1 OM2

Multimode OM3 OM4



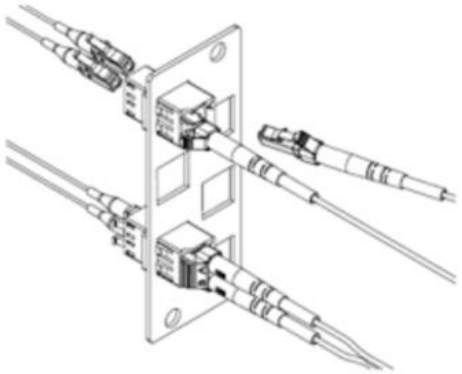
Single mode

Fiber Type / Connectors

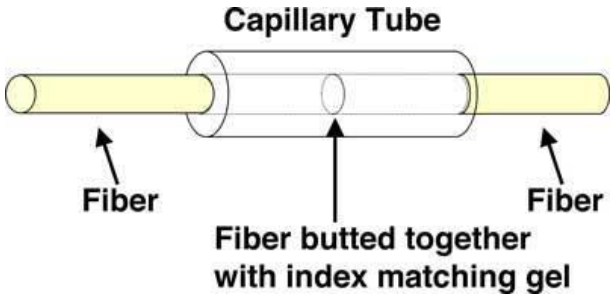
Optic Connectors

Fiber Connections

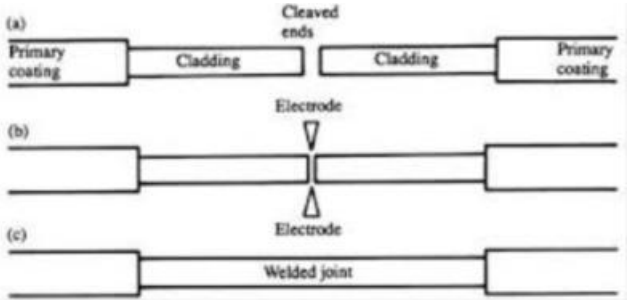
Patch

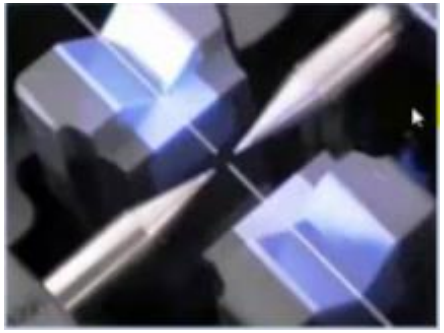


Mechanical Splice

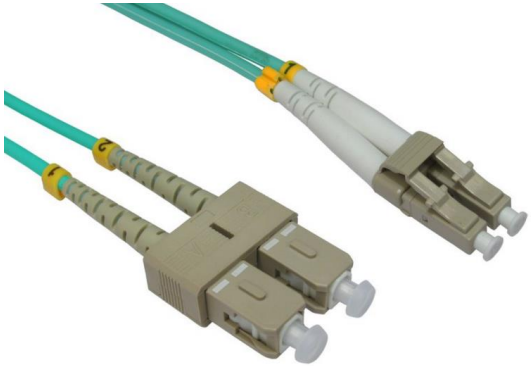


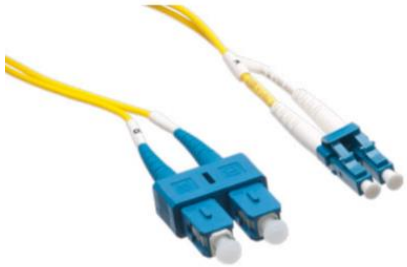
Fusion Splice





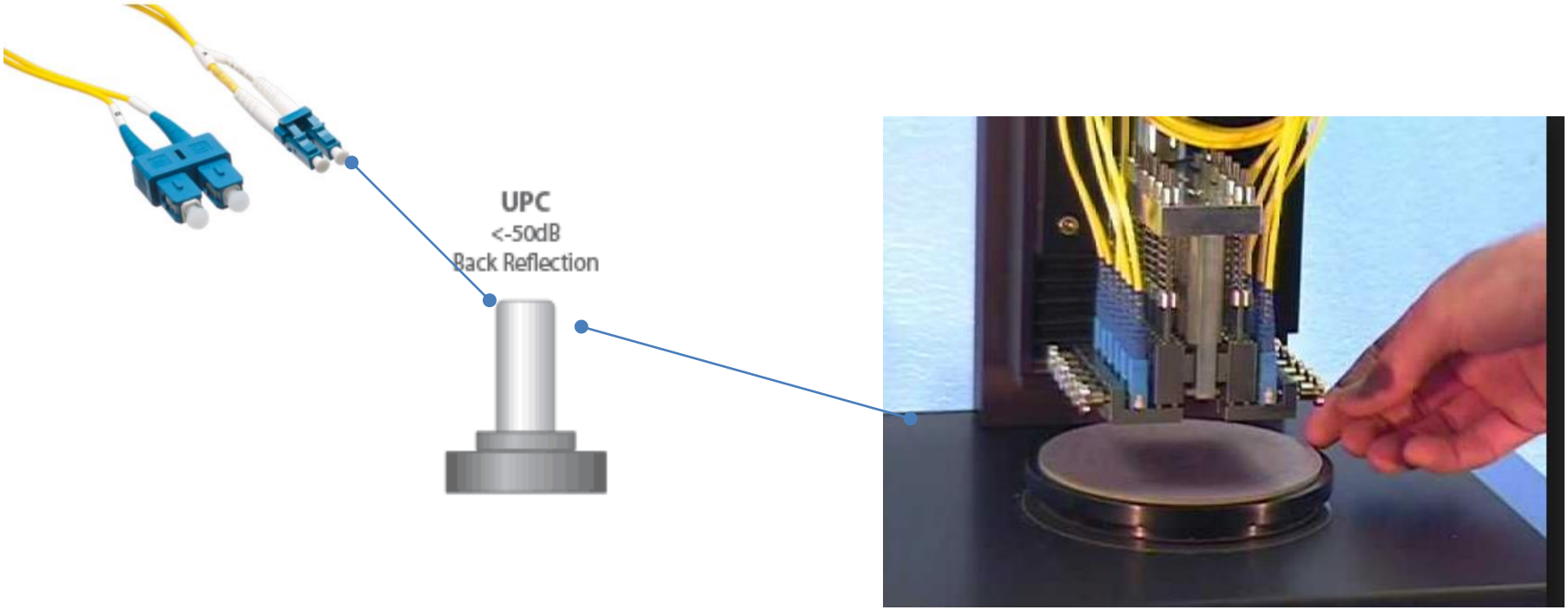
Connector Color



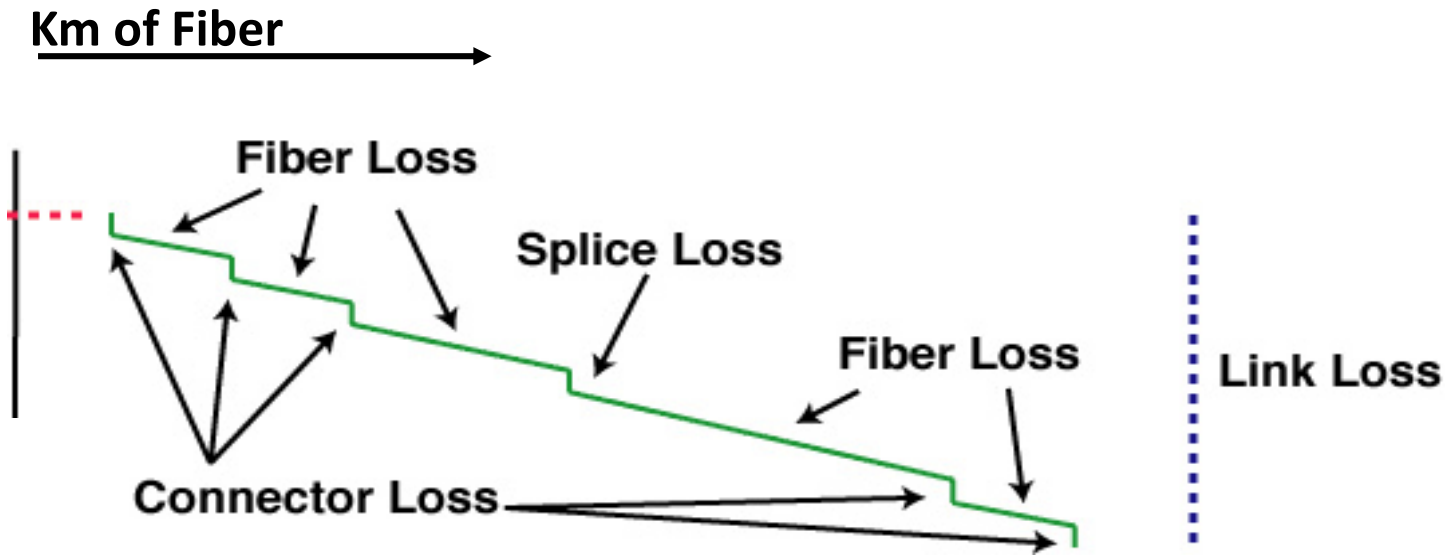


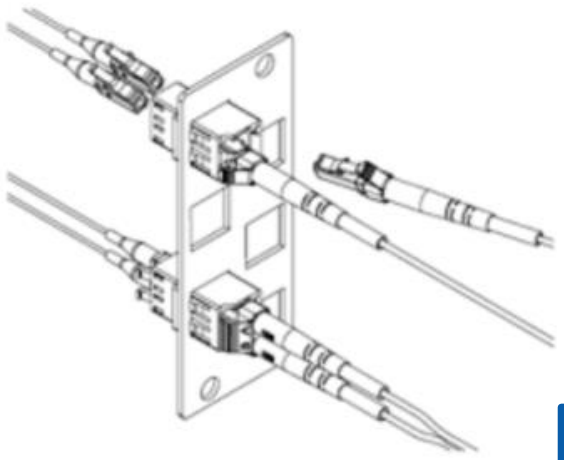
Multimode

Polishing Fiber Tip



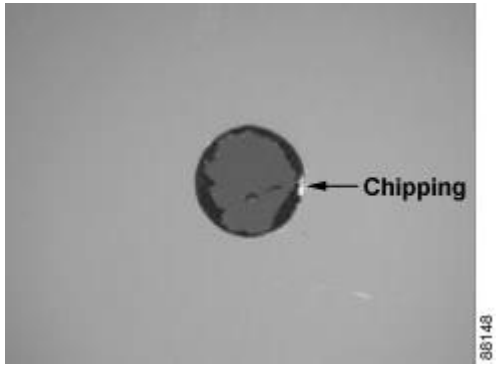
Optical Power budget

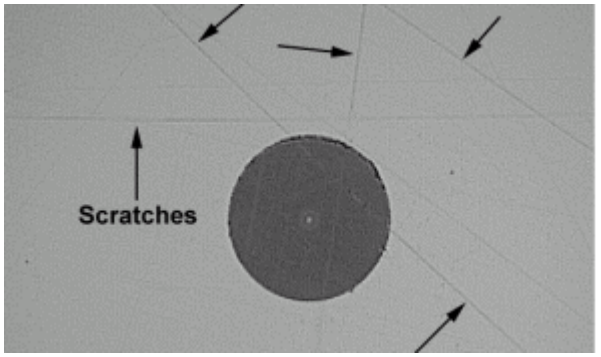


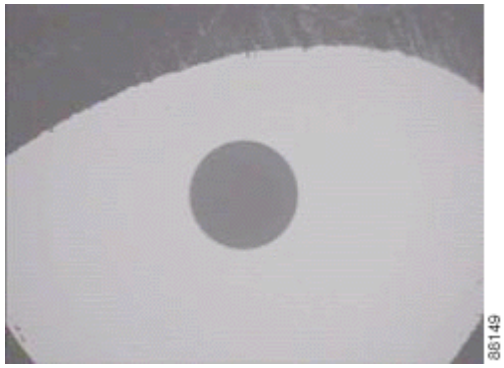


Patchloss from 0,3 to 5dB
Depending on damage/dirt

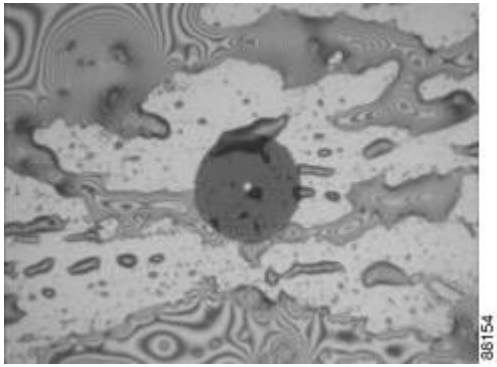
Manufactory fault

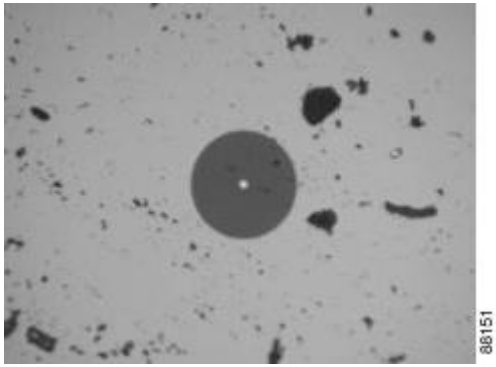


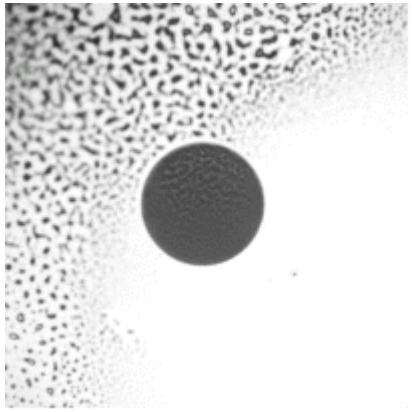




Faulty use







Cleaning for lower loss