

Appendix D. Specifications for 62.5-Micron Optical Fiber Cables

The IBM Cabling System currently recommends 100/140-micron optical fiber for extending token ring transmission distances between wiring closets. IBM now recommends the 62.5/125-micron optical fiber for most establishment cabling applications. The 100/140-micron optical fiber will continue to be supported for Token-Ring Networks and future Fiber Distributed Data Interface (FDDI) networks.

This 62.5/125-micron fiber specification is patterned after the fiber specification in the emerging Commercial Building Wiring Standard (developed by the TIA 41.8.1, and under study by the ISO SC25/WG2 working groups) for meeting most intra-building and campus links requirements. It is expected to become the accepted multimode standard for government and commercial buildings and will meet future FDDI application requirements. The FDDI standard also provides information for attaching FDDI cable plants using 50/125-, 100/140-, and 85/125-micron multimode optical fibers as alternatives. IBM recommends 62.5/125-micron multimode optical fiber. IBM also supports 50/125- (preferred fiber in Japan and other countries), 85/125-, and 100/140-micron multimode optical fibers, as defined in the ISO 9314/ANSI X3T9.5 standard for both Token-Ring Network and FDDI application.

Each cable specification parameter must be met over the full range of operating temperatures. A suggested temperature range of 0°C – 52°C (32°F – 125.6°F) is an appropriate choice for many installations. Maximum summer and minimum winter temperatures may differ from this range, particularly in installations where the fiber cable will be installed in uninsulated and unheated areas (typically building attics).

Customers should select a grade of fiber that will perform to specification in those instances where the temperature may exceed the suggested range.

Recommended Optical Fiber Specifications for Commercial Building Wiring

Multimode Optical Fiber

Description	62.5/125	50/125
Core diameter	62.5 + /-3 μm	50 + /-3 μm
Cladding diameter	127 + 0/-4 μm	127 + 0/-4 μm
Numerical aperture	0.275 + /-0.015	0.2 + /-0.015
Core/cladding offset	3 μm (maximum)	3 μm (maximum)
Core non-circularity	6% (maximum)	6% (maximum)
Cladding non-circularity	2% (maximum)	2% (maximum)

Maximum attenuation

850 nm	3.75 dB/km	3.5 dB/km
1300 nm	1.5 dB/km	1.5 dB/km

Minimum bandwidth

850 nm (nanometers)	160 MHz-km	500 MHz-km
1300 nm (wiring closet to office)	500 MHz-km	500 MHz-km
1300 nm (channel extension application)	500 Mhz-km	800 MHz-km

