

# Glass Geometry Measurement Method



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### **Scope**

This information describes the reference method for measuring the end-face glass geometry of Corning® single-mode and multimode optical fibers.

### **General**

End-face or cross-sectional glass geometry is measured using a commercially available optical fiber geometry measurement system. A high resolution image of the fiber end-face is magnified and digitized by the measurement system. Both the outer cladding edge and the core edge are fit with mathematical functions to define the fiber's end-face geometry. This enables the measure of cladding diameter, cladding non-circularity, core non-circularity, and core-clad concentricity.

### **Measurement Description**

The prepared fiber ends are placed in the input and output stages of the optical fiber geometry system as shown in Figure 1. The system automatically positions the output end of the fiber for image sharpness and adjusts the core illuminator intensity. Cladding edge and core edge data are then taken and fit to the appropriate algorithms. The results are automatically calculated and reported for cladding diameter, cladding non-circularity, and core-clad concentricity.

### **Measurement Conditions**

The fiber ends are stripped of coating (approximately 2 cm beyond the end of the fiber) and prepared with end angles less than 1° with near-perfect mirror surfaces.

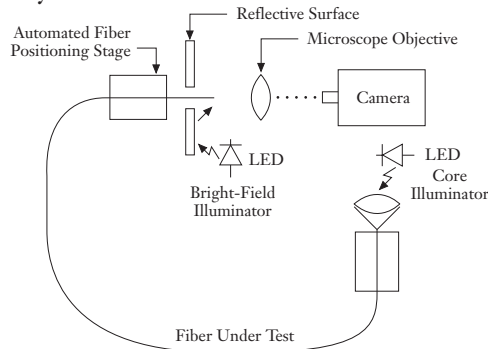
- Fiber Length                      Approximately 2 meters

## Apparatus

### Optical Fiber Geometry Measurement System Schematic

Figure 1

Shows a schematic of the optical system of a commercially available optical fiber geometry measurement system.



## References

FOTP-176 (TIA/EIA-455-176) "Method for Measuring Optical Fiber Geometry by Automated Grey-Scale Analysis"

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