

# Alcatel 6900 Singlemode Fiber



Alcatel Singlemode Fiber is designed to provide optimum performance in both the 1310nm and 1550nm wavelength operating ranges, with a low dispersion in the 1310nm operating window. Alcatel's Singlemode Fiber can be used in loose tube, tight buffered and ribbon cable configurations.

Although a common application of Singlemode Fiber is terrestrial long-distance networks, Alcatel's Singlemode Fiber has been specially optimized for Access and Enterprise networks, where high rates of transmission are becoming increasingly more prevalent.

All of Alcatel's fibers are further enhanced with the proprietary Alcatel Fiber Coating (AFC™) process and Colorlock™.

These proprietary processes complement the fiber to provide a complete solution ensuring the highest in performance, reliability and durability, even in the harshest environments. Additionally, Alcatel's fibers are manufactured utilizing the proprietary Advanced Plasma and Vapor Deposition (APVD) process. APVD has been specially developed to ensure the highest quality and purity of all Alcatel fibers.



**Singlemode Cabled Fiber** is still the most prevalent fiber used in today's fiber optic networks. Alcatel's Singlemode Fiber provides optimum performance in terms of distance, high bit-rates and capacity for a diverse range of applications.

As one of the world's largest manufacturers of communication products, Alcatel has the expertise, technology and manufacturing resources to provide a total end-to-end solution to support your fiber, cable, and systems requirements.

FEATURES	BENEFITS
▶ Keeps attenuation and dispersion low; highly efficient for 1310nm and 1550nm operating ranges	▶ Superior performance ideal for access and enterprise networks
▶ Fully compatible in terms of transmission, connections and installation tools	▶ Open standards for multi-sourcing worldwide
▶ Superior stripping ease, using both mechanical and heat-stripping techniques	▶ Easier, faster, more secure connections
▶ Utilizes Alcatel's proprietary Advanced Plasma and Vapor Deposition (APVD) process	▶ Ensures fiber with superior geometry and uniformity, as well as enhanced purity
▶ Utilizes Alcatel's unique Fiber coating-AFC™	▶ Increased reliability and durability resulting in lower maintenance and replacement costs
▶ Proprietary ColorLock™ process which makes the fiber color a component of the coating	▶ The fiber color is always consistent and distinguishable, ensuring increased ease-of-use and flexibility

## KEY INDUSTRY LEADING MILESTONES

- ▶ **1993**- Introduced Alcatel's AFC™ coating process for superior aging performance
- ▶ **1994**- Introduced Alcatel's proprietary Advanced Plasma and Vapor Deposition (APVD) fiber production process to ensure the highest quality fiber
- ▶ **1996**- Developed and introduced ColorLock™, enhancing fiber identification and color coatings

## OPTICAL SPECIFICATIONS

### Attenuation (cabled)

Attenuation @ 1310nm	≤ 0.35 dB/km
Attenuation @ 1550nm	≤ 0.25 dB/km
Attenuation @ 1383nm	≤ 1.5 dB/km

### Attenuation Uniformity

No point discontinuity greater than 0.1 dB at 1310nm and 1550nm.

### Wavelength vs. Attenuation

Maximum attenuation change over the window.

Wavelength (nm)	Attenuation (dB/km)
1285-1310	≤ 0.035
1310-1330	≤ 0.03
1525-1550	≤ 0.03
1575-1550	≤ 0.03

### Attenuation with Bending

100 turns, 75mm diameter @ 1550 & 1620nm:	≤ 0.05 dB
1 turn, 32mm diameter @ 1550 & 1620nm:	≤ 0.5 dB

### Wavelength

Cutoff Wavelength (cabled)	≤ 1260nm
Zero Dispersion Wavelength	1310±10nm

### Dispersion Slope

Zero Dispersion Slope	< 0.092 ps/nm <sup>2</sup> * km
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### PMD (cabled)

PMD Quadrature Average:	≤ 0.1ps/√km
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## DIMENSIONAL SPECIFICATIONS

Mode Field Diameter @1310nm:	9.0±0.5μm
Mode Field Diameter @1550nm:	10.2±1.0μm
Fiber Outside Diameter:	125.0±1.0μm
Fiber Non-Circularity:	< 1.0%
Colored Coating Outside Diameter:	242±7μm
Colored Coating/Clad Concentricity Error:	≤ 12μm
Fiber Curl (radius):	> 4 meters

**Alcatel's Singlemode Fiber is fully ITU G.652, IEC 60793-1 and Telcordia GR-20-CORE compliant.**

Cable specifications apply to Alcatel manufactured cables and are tested or characterized in compliance to international standards.

*Alcatel reserves the right to change specifications without prior notice.*

## MECHANICAL SPECIFICATIONS

### Proof Test of AFC™ ColorLock™ Coated

The entire length is subjected to a tensile proof stress >100 Kpsi (0.7 GN/m<sup>2</sup>); 1% strain equivalent

### Tensile Strength

Dynamic Tensile Strength (0.5 meter gauge length):  
Aged\* & Unaged median ≥ 550 Kpsi (3.8GN/m<sup>2</sup>)

### Dynamic and Static Fatigue

Dynamic Fatigue, Tensile:	N <sub>d</sub> =20 unaged and aged*
Dynamic Fatigue, 2 Point Bend:	N <sub>d</sub> =20 unaged and aged*
Static Fatigue:	N <sub>s</sub> ≥ 20 aged at 85°C, 85% RH

### Coating Strip Force

Coating Strip Force: 2.0lbf (8.9N) max, 0.3 lbf (1.3N) min.  
23°C, 0°C, and 45°C  
Aged: 30 days at 85°C and 85% relative humidity  
14 days water immersion at 23°C  
Wasp spray exposure (Telcordia)

## ENVIRONMENTAL SPECIFICATIONS

Induced Attenuation@1550nm	(dB/km)
Temperature Cycling Performance (-60°C to 85°C):	≤ 0.05
Temperature Humidity Cycling (-10°C to 85°C, 4-98%RH):	≤ 0.05
Water Immersion (23°C):	≤ 0.05
Heat Aging (85°C):	≤ 0.05

## TYPICAL CHARACTERIZATION VALUES

Nominal Zero Dispersion Wavelength:	1310nm
Nominal Zero Dispersion Slope:	0.086 ps/nm <sup>2</sup> * km
Effective Group Index @ 1310nm:	1.4640
@ 1550nm:	1.4645
Backscatter Coefficient @ 1310nm:	-76.7 dBm
Backscatter Coefficient @ 1550nm:	-81.7 dBm
Typical Core Diameter:	8.8μm
Dynamic Tensile Strength (*Aged):	median 750 Kpsi (5.26GN/m <sup>2</sup> ) (0.5m gauge length)
Dynamic Fatigue (*Aged):	N <sub>d</sub> =22
Static Fatigue:	N <sub>s</sub> ≥ 25 aged @ 85°C, 85% RH
Dispersion @1285-1330nm:	≤ 2.8 ps/nm* km
Dispersion @1550nm	≤ 17 ps/nm* km

\*Aged for 30 days at 85°C, 85% relative humidity

For additional information visit Alcatel online or call your nearest Optical Fiber Sales Representative

[www.alcatel.com/opticalfiber](http://www.alcatel.com/opticalfiber)

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