Alcatel 6910
TeraLight™ Fiber

The uniqueness of TeraLight's™ performance lies in the balance of three key factors affecting fiber performance: Effective Area, Dispersion Slope, and Chromatic Dispersion. Optimization of these three factors ensures that TeraLight provides DWDM compatibility with the current C and L bands, as well as with the future S band.

Careful optimization of the dispersion and effective area characteristics minimizes the generation of non-linear effects. This provides TeraLight with very tight channel spacing compatibility in both the C and L bands with 10 Gb/s systems. By optimizing dispersion and slope, TeraLight also maintains the zero point below 1440nm to provide a positive dispersion region above 1440nm to be compatible with the future S band. As a result, TeraLight can provide > 320 channels, or 3.2 Tb/s of capacity with 10 Gb/s systems.

The low dispersion slope, combined with low non-linear effects provides excellent characteristics for future 40Gb/s systems. In fact, Alcatel has already proven TeraLight's potential and upgradability with the successful demonstration of 10.2 Tb/s transmission with 40Gb/s systems.

TeraLight™ Cabled Fiber

Alcatel's Non-Zero Dispersion Shifted Fiber (NZ-DSF) is one of the most technically advanced fibers available on the market. TeraLight, optimized for wavelengths greater than 1440nm, has been specially designed for long-distance, high-bit rate transmission. It is optimized for 10 Gb/s and +40 Gb/s systems.

Alcatel, one of the world's largest manufacturers of communications products, 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
Supports more than 320 channels (3.2 Tb/s with 10 Gb/s systems) in the C, L and S bands	Increased capacity and superior performance More cost effective bandwidth deployment
More than 160 channels (1.6 Tb/s with 10 Gb/s systems) just in the C band	Maximizing utilization of the C band significantly decreases costs by deferring the need to deploy the more costly L band
Excellent dispersion characteristics for future 40 Gb/s systems, and fully compatible with the future S band	Cost-effective upgrade path to future-proof your investments for years to come
Capable of close to 100% end-to-end dispersion slope compensation	Enhanced distance capability with 40 Gb/s systems
Utilizes Alcatel's unique Fiber AFC™ Coating Process	Increased reliability and durability even in harsh conditions 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
Enhanced DWDM performance	Lower system cost through longer regeneration capabilities for 100, 50 and 25 GHz spacings. Cross channel non-linearity limits for 100 Ghz systems are nearly doubled.

KEY INDUSTRY LEADING MILESTONES

- September 1999- Teralight™ achieves 1.5 Tb/s transmission of 150 channels at 10 Gb/s, with 50 GHz spacing in the C and L bands over a 400km link.
- September 2000- Alcatel sets a world record for DWDM backbone networks at 5.12 Tb/s transmission with TeraLight™, using unidirectional transmission of 128 channels each modulated at 40 Gb/s.
- March 2001- Alcatel sets a world record for DWDM backbone networks at 10.2 Tb/s transmission with TeraLight™

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Optical Specifications

Attenuation (cabled)

Attenuation @1550nm	≤0.25 dB/km
Attenuation @1620nm	≤0.28 dB/km
Attenuation @ 1383nm	≤1.5 dB/km

Attenuation Uniformity

No point discontinuity greater than 0.1dB at 1550nm

Wavelength vs. Attenuation

Maximum attenuation *change* over the window.

Wavelength (nm)	Attenuation (dB/km)
1525-1550	≤0.03
1550-1575	≤0.03
1550-1620	≤0.05

Wavelength vs. Dispersion

Wavelength (nm)	Dispersion (ps/nm•km)
1440	>0.1
1530-1565	5.5 - 10.0
1565-1620	7.5 - 13.8

Attenuation with Bending

100 turns, 60mm diameter @1550 &1620nm:	≤0.05 dB
1 turn, 32mm diameter @1550 &1620nm:	≤0.5 dB

Wavelength

Cutoff Wavelength (cabled)	≤1300nm
Zero Dispersion Wavelength	<1440nm

PMD (cabled)

PMD Link Design Value:	≤0.08ps/√km*

Dimensional Specifications

Mode Field Diameter @1550nm	9.2±0.5µm
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

TeraLight™ is fully compliant with ITU G.655 and IEC 60793 - 2

*Calculated according to IEC SC86A, WG1 method 1, 1997 (Q=0.1%, N=20). PMD link design value provides a statistical upper limit for PMD over concatenated fibers.

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

Only Cabled TeraLight Fiber is available in the USA. 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/m²); 1% strain equivalent

Tensile Strength

Dynamic Tensile Strength (0.5 meter gauge length):

Aged* & Unaged:	median ≥ 550 Kpsi (3.8GN/m²)

Dynamic and Static Fatigue

Dynamic Fatigue, Tensile:	N_d=20 unaged and aged*
Dynamic Fatigue, 2 Point Bend:	N_d=20 unaged and aged*
Static Fatigue:	N_s≥ 20 aged*

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 Spec)

Environmental Specifications

Induced Attenuation Change @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 Fiber Characterization Values

Attenuation @ 1550nm:	0.205 dB/km
Attenuation @ 1620nm:	0.22 dB/km
Effective Area:	63µm²
Nominal Dispersion Slope @ 1550nm:	0.058 ps/nm²•km
Effective Group Index @ 1550nm:	1.4692
Dynamic Tensile Strength (Aged*):	median 750 Kpsi (5.26GN/m²)
(0.5m gauge length)	
Dynamic Fatigue (Aged*):	N_d=22
Static Fatigue:	N_s≥ 25 aged*
Dispersion @1550nm:	8.0 ps/nm•km
Dispersion @1620nm:	10.9 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

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