

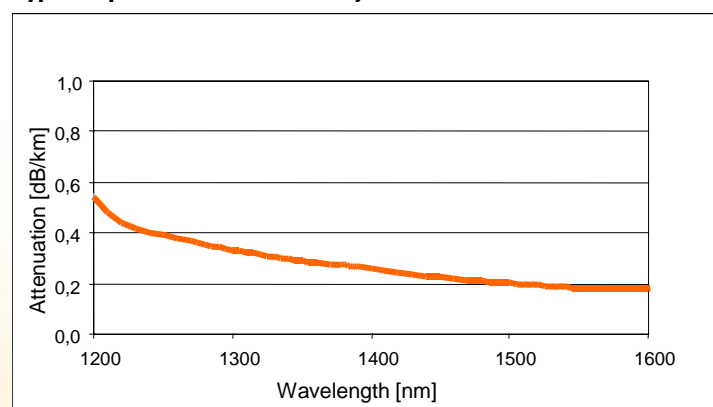
## Low Water Peak Singlemode Fiber j-LWP SMF<sup>+</sup> (ITU-T G.652.D)

j-fiber's Low Water Peak Singlemode fiber j-LWP SMF<sup>+</sup> is a full spectrum fiber and provides enhanced performance across the entire 1260nm to 1625nm wavelength range. Due to its reliable long-term low attenuation at the 1383nm water peak region the fiber allows operation in the expanded band (wavelength range across 1360nm to 1480nm). It is the fiber of choice when lowest cost for maximum flexibility is required in optical networks. Its full-spectrum capability allows use of lower cost lasers designed for WDM technologies, helps to maximize return on investment due to increased fiber capacity and enables flexible network design. The fibers superior overall optical, mechanical and geometrical tolerances characterize its industry leading performance. It can be used in all cable constructions, including loose tube, tight buffered, ribbon, and central tube designs. All features of j-LWP SMF<sup>+</sup>, combined with the complete compatibility with the installed fiber base, enable cost effective network solutions, provide highest network design flexibility and thus, j-LWP SMF<sup>+</sup>, represents a future proof investment to meet upcoming architectures and technologies.

### Features and Benefits

- Full spectrum fiber to benefit from lower cost laser use in wavelength range 1260 nm up to 1625nm
- Reliable long term low attenuation at 1383nm water peak region for expanded fiber capacity through use of higher number of channels or enabling of wavelength multiplexing (DWDM and CWDM)
- Lowest PMD value for extended distance performance
- Superior fiber uniformity and geometry results in easy handling and excellent splicing performance
- Full compatibility and interoperability with installed fiber base, including standard Singlemode fiber according to ITU-T G.652 A, B, C and D
- 500 $\mu$ m coating designs for deployment in harsh environments available

### Typical spectral attenuation for j-LWP SMF<sup>+</sup>



For further information about our Singlemode Fiber and other j-fiber products and services, please contact us:

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### Quality Assurance

Fully compatible to worldwide standards, meets or exceeds:

- ITU-T Recommendation G.652 D,
- TIA/EIA 492 CAAB,
- EN/IEC 60793-2-50 Type B1.3
- Telcordia's GR 20 CORE requirements

The fiber is fully characterized according to ITU-T recommendations G.650 and IEC 60793-1.

## Optical Characteristics

		Spec. Value Range	Unit
Attenuation Coefficient <sup>1</sup>	1310nm	≤ 0.33 – ≤ 0.35	dB/km
	1383nm <sup>2</sup>	≤ 0.31 – ≤ 0.35	dB/km
	1550nm	≤ 0.19 – ≤ 0.21	dB/km
	1625	≤ 0.20 – ≤ 0.23	dB/km
Attenuation Variance Range <sup>3</sup>			
	1285 – 1330nm	≤ 0.03	dB/km
	1530 – 1570nm	≤ 0.02	dB/km
	1460 – 1625nm	≤ 0.04	dB/km
Mode Field Diameter	1310nm	9.2 ± 0.4	μm
	1550nm	10.4 ± 0.5	μm
Point Discontinuity (tp=1 μs)	1310nm	≤ 0.05	dB
	1550nm	≤ 0.05	dB
Attenuation Uniformity		≤ 0.05	dB
Macrobending Loss			
Bend Induced attenuation, 100 turns around a mandrel of 50mm diameter	1310nm	≤ 0.05	dB
	1550nm	≤ 0.05	dB
	1 turn around a mandrel of 32mm diameter	1550nm	≤ 0.05
Fiber Cut-off Wavelength λ <sub>c</sub>		1200 – 1330	nm
Cable Cut-off Wavelength λ <sub>cc</sub>		≤ 1260	nm
Zero Dispersion Wavelength λ <sub>0</sub>		1302 ≤ λ <sub>0</sub> ≤ 1322	nm
Zero Dispersion Slope S <sub>0</sub>		≤ 0.092	ps/nm <sup>2</sup> ·km
Chromatic Dispersion			
	1270 – 1340nm	≤ 5.00	ps/nm·km
	1285 – 1330nm	≤ 3.00	ps/nm·km
	1550nm	≤ 18.00	ps/nm·km
Effective Group Index of Refraction	1310nm	1.467	
	1383 nm	1.467	
	1550nm	1.467	
Polarization Mode Dispersion Link Value <sup>4</sup>		≤ 0.06	ps/√km
Individual Fiber <sup>5</sup>		≤ 0.10	ps/√km

<sup>1</sup> Special Attenuation cells available upon request

<sup>2</sup> Attenuation values for 1383nm represent post-hydrogen aging performance and are always lower or equal than the attenuation value for 1310nm

<sup>3</sup> Fiber attenuation in specified ranges doesn't exceed nominal values @ 1310/1550nm by more than this values.

<sup>4</sup> M=20, Q=0.01%

<sup>5</sup> Individual values may change when cabled

## Mechanical Characteristics

	Spec. Values	Unit
Proof Test	≥ 100	kpsi
	≥ 8.8	N
	≥ 0.7	GPa
Dynamic Tensile Strength		
Unaged Fiber (0.5m)		
Median Tensile Strength	≥ 3.8	GPa
15th Percentile Tensile Strength	≥ 3.3	GPa
Aged Fiber (0.5m)		
Median Tensile Strength	≥ 3.03	GPa
15th Percentile Tensile Strength	≥ 2.76	GPa
Dynamic Fatigue		
Stress Corrosion Parameter n <sub>d</sub>	≥ 20	
Operating Temperature Range		-60 to +85
Average Coating Strip Force (typical)		1.9
		N

## Geometrical Characteristics for standard 250μm fiber

	Spec. Values	Unit
Core/Clad Concentricity Error	≤ 0.5	μm
Cladding Diameter	125 ± 0.7 <sup>1</sup>	μm
Cladding Non-Circularity	≤ 0.7	%
Coating Diameter	245 ± 5.0	μm
Coating/Clad Concentricity Error	≤ 10.0	μm
Fiber Curl Radius	≥ 4.0	m
Standard Lengths	2.2 - 50.4	km

<sup>1</sup> other tolerances are available upon request

## 500μm Ruggedized Singlemode Fiber

The application of optical fibers in rough or demanding environments, such as in mining, industry, aerospace, military and transportation requires a maximum protection of the fiber. Especially designed for ruggedized cables j-fiber offers its Singlemode fibers with enlarged coating diameter of 500μm.

## Geometrical Characteristics for ruggedized 500μm fiber

	Spec. Values	Unit
Core/Clad Concentricity Error	≤ 0.8	μm
Cladding Diameter	125 ± 1.0 <sup>1</sup>	μm
Cladding Non-Circularity	≤ 1.0	%
Coating Diameter	500 ± 15.0	μm
Coating/Clad Concentricity Error	≤ 20.0	μm
Fiber Curl Radius	≥ 2.0	m
Standard Lengths	2.2 – 8.8	km

<sup>1</sup> other tolerances are available upon request

## Environmental Characteristics

	Spec. Values	Unit
	at 1310/1550nm	
Change of Temperature Attenuation increase, -60°C to +85°C	≤ 0.05	dB/km
Dry Heat Attenuation increase, 30 days at 85°C	≤ 0.05	dB/km
Damp Heat Attenuation increase, 30 days at 85°C/85% R.H.	≤ 0.05	dB/km
Water Immersion Attenuation increase, 30 days in 23°C water	≤ 0.05	dB/km

## Spool Sizes

	small	large
Fiber length	< 25.2km	> 25.2km
Spool diameter	9.25"/23.5cm	10.4"/26.4cm
Spool width	4.21"/10.7cm	6.65"/16.9cm
Spindle	1"/2.54cm	1"/2.54cm
Traverse width	3.75"/9.5cm	5.9"/15.0cm

## Coating

j-fiber's j-LWP SMF<sup>+</sup>, is protected with FCC, an enhanced coating material that guarantees long-term performance and reliability. This dual layer acrylate material is user friendly and compatible in all cable constructions, such as tight buffering, loose tube, ribbon and slotted core designs with low bending loss. The coating is mechanically strippable without leaving residue.

j-LWP SMF<sup>+</sup>, is available with a standard coating diameter of 245μm and a ruggedized coating diameter of 500μm.

## Environmental Friendly Packaging

The shipping spool is designed to safeguard j-fiber optical fiber not only during shipping but also during subsequent handling in the customer's plant. It features smooth inside surfaces to ensure that the fiber is wound on and off the reel without the risk of breaking. The reel barrel is isolated via a polyethylene cover. The inside end of the fiber can be accessed for various measurements while still on the shipping spool. Each spool carries product information, including fiber type, measurement data and peel-off bar coding to assist with inventory control. All reels and transport boxes are designed to take advantage of our recycling program.

## Ordering Information

To order j-LWP SMF<sup>+</sup>, please call, fax or email us and specify the following parameters when ordering:

Fiber Type:	j-LWP SMF <sup>+</sup> , 09/125/245μm
Desired Attenuation:	at 1310nm/1550/1625nm
Desired Coating Diameter	250μm or 500μm
Fiber Quantity:	kms
Other:	desired ship date, reel length, special requests

All fibers and preforms are subject to j-fiber's ongoing process and quality improvement programs ensuring excellent performance and high reliability. We reserve the right to make changes to the above specification without notice.

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