

Low Bend Loss Singlemode Fiber j-LBL SMF (ITU-T G.657.A)

j-fiber's j-LBL SMF is a full spectrum fiber and features an optimized waveguide design for excellent macro bending performance.

With the Fiber-to-the-Home (FTTx) network roll out proceeding the fiber to be installed is subject to a greater degree of bending, since smaller distribution cabinets and compact fiber management systems are deployed. j-fiber's j-LBL SMF offers outstanding bend performance that is far superior to conventional matched clad Singlemode fiber for access and premises networks or any application where tolerance to small bend radii and robustness is required. The use of j-LBL SMF supports efficient network installation as it helps to easily meet highly demanding installation conditions. At the same time j-fiber j-LBL SMF is fully compatible with the installed fiber base of any G.652 fiber.

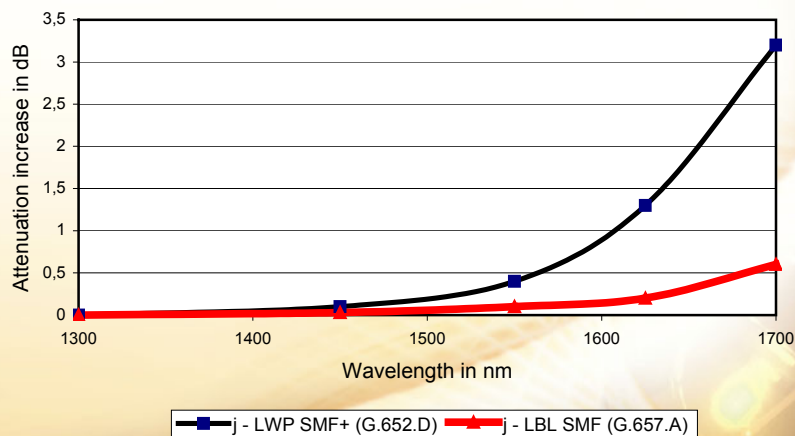
j-fiber's j-LBL SMF excellent bend performance also results in lower attenuation in challenging cabling constructions such as tight buffer, ribbon and cables for low temperatures.

j-fiber's j-LBL SMF low macro bending sensitivity is maintained across the entire usable 1260nm to 1625nm wavelength range. Due to its reliable long-term low attenuation at the 1383nm water peak region the fiber also allows operation in the expanded band (wavelength range across 1360nm to 1480nm).

Features and Benefits

- Full spectrum fiber for use in wavelength range 1260nm up to 1625nm
- Low macro-bending loss for small bend radii supports tight storage of surplus fiber in compact installations
- Low micro-bending loss allows for highly demanding cable designs such as required in Fiber-to-the-Home applications
- Reliable long term low attenuation at 1383nm water peak region for expanded fiber capacity through extended possibilities for wavelength multiplexing (DWDM and CWDM)
- Superior fiber uniformity and geometry results in easy handling and excellent splicing performance
- Full backwards-compatibility and interoperability with installed fiber base, such as standard Singlemode fiber accord. ITU-T G.652 A, B, C and D, low loss splicing with conventional Singlemode and Low Water Peak Singlemode (e.g. j- LWP SMF⁺) fiber.

Comparison of typical bending performance for j-fiber j-LBL SMF (10mm radius, 1 turn)



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

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Optical Characteristics

		Spec. Value Range	Unit
Attenuation Coefficient ¹	1310nm	≤ 0.33 – ≤ 0.36	dB/km
	1383nm ²	≤ 0.31 – ≤ 0.36	dB/km
	1550nm	≤ 0.19 – ≤ 0.21	dB/km
	1625	≤ 0.20 – ≤ 0.23	dB/km
Attenuation Variance Range ³			
	1285 – 1330nm	≤ 0.03	dB/km
	1530 – 1570nm	≤ 0.02	dB/km
	1460 – 1625nm	≤ 0.04	dB/km
Mode Field Diameter	1310nm	8.6 ± 0.4	μm
	1550nm	9.8 ± 0.5	μm
Point Discontinuity (tp=1 μs)	1310nm	≤ 0.05	dB
	1550nm	≤ 0.05	dB
Attenuation Uniformity		≤ 0.05	dB
Fiber Cut-off Wavelength λ _c		≤ 1340	nm
Cable Cut-off Wavelength λ _{cc}		≤ 1260	nm
MAC (MFD1310/λ _c)		≤ 6.8	
Zero Dispersion Wavelength λ ₀		1300 ≤ λ ₀ ≤ 1324	nm
Zero Dispersion Slope S ₀		≤ 0.092	ps/nm ² ·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	
	1550nm	1.467	
Polarization Mode Dispersion Link Value ⁴ Individual Fiber ⁵		≤ 0.06 ≤ 0.10	ps/√km ps/√km

¹ Special Attenuation cells available upon request

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

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

⁴ M=20, Q=0.01%

⁵ Individual values may change when cabled

Bending Characteristics

		Spec. Values	Unit
Macrobending Loss			
Bend Induced Attenuation			
10 turns	1550nm	≤ 0.03	dB
Radius 15mm	1625nm	≤ 0.2	dB
1 turn	1550nm	≤ 0.3	dB
Radius 10mm	1625nm	≤ 1.0	dB

Quality Assurance

Fully compatible to worldwide standards, meets or exceeds:

- ITU-T Recommendation G.652 D, G.657 A
- EN/IEC 60793-2-50 Type B6_a
- Telcordia's GR 20 CORE requirements

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

Geometrical Characteristics

	Spec. Values	Unit
Core/Clad Concentricity Error	≤ 0.5	μm
Cladding Diameter	125 ± 0.7 ¹	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
Colors ²	Natural	

¹ other tolerances are available upon request

² Coloring and ring marking available upon request

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	≥ 3.0	GPa
15th Percentile Tensile Strength	≥ 2.8	GPa
Dynamic Fatigue		
Stress Corrosion Parameter n _d	≥ 20	
Operating Temperature Range	-60 to +85	°C
Average Coating Strip Force (typical)	1.9	N

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 j-LBL SMF is protected with our FCC, an enhanced coating material that guarantees long-term performance and reliability. The dual layer acrylate material is user friendly and compatible in all cable constructions, such as tight buffer and loose tube designs with low bending loss.

j-fiber j-LBL SMF is available with a standard coating diameter of 245μm. Other coating diameter, such as the enlarged coating with 500μm is available upon request.

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 and additionally protected with an air-cushion-foil. 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-fiber j-LBL SMF please call, fax or email us and specify the following parameters when ordering:

Fiber Type:	j- LBL SMF Singlemode Fiber 09/125/245μm
Desired Attenuation:	at 1310nm/1550/1625nm
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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