

# WidePass™ Fiber | Low Water Peak Fiber SF-LWP

## Product Information

SAMSUNG's WidePass™ single-mode optical fiber (ITU-T G.652.C/D) is designed to provide full optical transmission over the entire operating wavelength range from 1260 nm to 1625 nm (O, E, S, C, L-band). It has a low attenuation in E-band (1360 nm to 1460 nm) by eliminating the water peak permanently, which opens up the unusable band for additional bandwidth expansion. WidePass™ fiber complies with ITU-T G.652.C and G.652.D requirements and meets or exceeds not only the current industry standards, but also customers' expectations.

WidePass™ fiber is optimized for metropolitan and access area network applications and its long-term reliability is guaranteed over the entire life time of the cabled fiber. With even more improved and reinforced specifications in major optical and geometrical parameters, Samsung's WidePass™ single-mode optical fiber is the product of choice for current and future optical networks.

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## Features / Benefits ❖❖

- 50% more wavelength spectrum and 33% more channels
- Lower cost upgrade enabled by utilizing CWDM technology
- Outstanding long-term reliability from immunity to hydrogen aging
- Uniform low attenuation and optimized dispersion
- Coated with high performance dual acrylate coating for long-term reliability
- Enhanced PMDs and dispersions for additional flexibility in network design
- Excellent compatibility with any commercial fibers in legacy network systems
- Outstanding bending resistance and geometrical properties for use in loose tube, ribbon, tight buffer, and other cable structures
- Significant savings in coloring time and costs by reduced coating diameter tolerance
- Complies with ITU.T Recommendations G.652.C/D, TIA/EIA-492CAAB, IEC Publication 60793-2, and GR-20-CORE requirements

## Applications ❖❖

- Long Haul telecommunication cables
- High data-rate voice, video and data communication cables
- CATV cables
- Local Access, Metro Loop transmission cable



## Optical Specifications ❖❖

### ATTENUATION †

Parameters		
Attenuation (dB/km)	@ 1310 nm	≤ 0.34
	@ 1383 nm	≤ 0.33 <sup>††</sup>
	@ 1550 nm	≤ 0.21
	@ 1625 nm	≤ 0.24

Point Discontinuity (@ 1310 nm & 1550 nm) ≤ 0.05 dB

†Different attenuation offerings available upon request    ††Post-hydrogen aging performance

### ATTENUATION VS. WAVELENGTH

- 1285 nm ~ 1330 nm wavelength range  
The attenuation in the above wavelength range does not exceed the attenuation at 1310 nm by more than 0.03 dB/km
- 1525 nm ~ 1575 nm wavelength range  
The attenuation in the above wavelength range does not exceed the attenuation at 1550 nm by more than 0.03 dB/km

### MACROBENDING LOSS

Mandrel Diameter (mm)	Number of Turns	Wavelength (nm)	Induced Attenuation (dB)
32	1	1550	≤ 0.5
50	100	1310	≤ 0.05
50	100	1550	≤ 0.1
60	100	1550	≤ 0.05
60	100	1625	≤ 0.05

### POLARIZATION MODE DISPERSION

PMD <sub>o</sub>	≤ 0.06 ps/√km †
Max. Individual Value	≤ 0.1 ps/√km

† Complies with IEC 60794-3:2001, Section 5.5, Method 1, September 2001

† PMD<sub>o</sub> : Quadrature Average PMD (also known as PMD Link Design Value)

† PMD values may change when cabled. Check with your cable manufacturer for specific PMD values for cabled fiber.

### DISPERSION

Dispersion	@ 1285 ~ 1330 nm	≤ 3.0 ps/nm-km
	@ 1550 nm	≤ 17.5 ps/nm-km
	@ 1625 nm	≤ 22.0 ps/nm-km
Zero Dispersion Wavelength		1302 ~ 1322 nm
Zero Dispersion Slope		≤ 0.091 ps/nm <sup>2</sup> -km

### MODE FIELD DIAMETER

- 9.2 ± 0.4 μm at 1310 nm
- 10.4 ± 0.5 μm at 1550 nm

### CUTOFF WAVELENGTH

- ≤ 1260 nm (cabled fiber, λ<sub>cc</sub>)

## Fiber Length ❖❖

- Standard: 25.2 km, 50.4 km per spool
- Other fiber lengths up to 50.4 km are available upon request

## Dimensional Specifications

Parameters		Unit	Specification
Glass	Clad Diameter	$\mu\text{m}$	$125.0 \pm 0.7$
	Clad Non-Circularity	%	$\leq 0.8$
	Core-Clad Concentricity Error	$\mu\text{m}$	$\leq 0.5$
	Fiber Curl	m	$\geq 4.0$
Coating	Coating Diameter	$\mu\text{m}$	$245 \pm 3$
	Coating Outer Non-Circularity	%	$\leq 5.0$
	Coating Concentricity Error	$\mu\text{m}$	$\leq 10.0$

## Mechanical Specifications

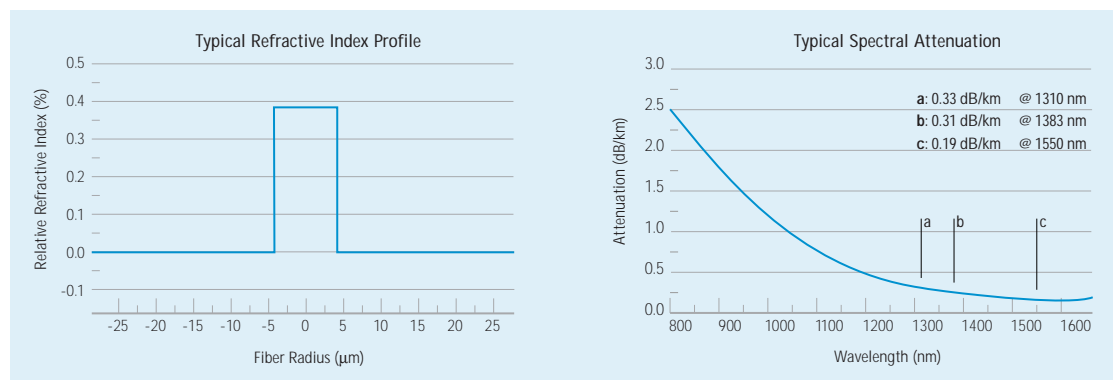
Parameters	Specifications
Proof Test Level	$\geq 100$ kpsi (0.7 GPa)
Dynamic Tensile Strength (Guage Length : 0.5 m)	Mean Value $\geq 4.0$ GPa
Coating Strip Force	1.3 ~ 8.9 N

## Environmental Specifications

Parameters	Specifications
Temperature Dependence ( -60 °C ~ +85 °C)	$\leq 0.05$ dB/km @ 1310 nm & 1550 nm
Temp.-Humidity Cycling (-10 °C ~ +85 °C, 98% RH)	$\leq 0.05$ dB/km @ 1310 nm & 1550 nm
Water Immersion, 23 $\pm$ 2 °C	$\leq 0.05$ dB/km @ 1310 nm & 1550 nm
Heat Aging, 85 $\pm$ 2 °C	$\leq 0.05$ dB/km @ 1310 nm & 1550 nm

## Typical Performance Characteristics

- Effective Group Index of Refraction 1.4690 at 1310 nm, 1.4695 at 1550 nm
- Refractive Index Difference 0.34 %
- Zero Dispersion Wavelength 1312 nm
- Zero Dispersion Slope 0.085 ps/nm<sup>2</sup>·km
- Dispersion at 1550 nm 16.6 ps/nm·km
- Dynamic Fatigue Parameter ( $n_a$ ) 20
- Coating Strip Force 3 N (Dry, Wet: 14-day water immersion at 23 °C)

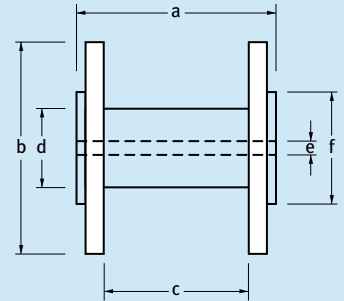


## Packaging and Test Certification

### PACKAGING

- Optical fiber is wound on a shipping spool for which dimensions are:

Spool size	25.2 km	50.4 km
a= width of outside flanges	120 mm	175 mm
b= flange diameter	248 mm	264.4 mm
c= width of inside flanges	95 mm	150 mm
d= barrel out-diameter	150 mm	170 mm
e= bore diameter	25.4 + 0.5 / -0.1 mm	25.4 + 0.3 / -0.0 mm
f= wing diameter	160 mm	182 mm



### LABEL

- A label attached to each shipping spool contains at least the following information:
  - Fiber I.D.
  - Fiber Length
  - Chromatic Dispersion at 1310 nm & 1550 nm

### TEST CERTIFICATION

- One copy of a test certification sheet is enclosed in the shipping carton.
- The sheet contains at least the following information.
  - Fiber I.D.
  - Fiber Length
  - Attenuation at 1310 nm & 1550 nm
  - Chromatic Dispersion at 1310 nm & 1550 nm
  - Mode Field Diameter at 1310 nm
  - Cutoff Wavelength
  - Geometries of the fiber and coating
  - PMD @ 1550 nm



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