

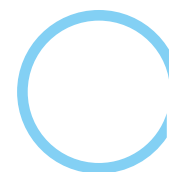
FinOptic-LBLF(G657A1) is a Low Bend Loss Singlemode fiber designed for transmission systems over the entire range from 1260 to 1625 nm range. FinOptic-LBLF (G657A1) has excellent bending performance and also result in lower attenuation in challenging applications & it is optimised for use in Fibre To The Home (FTTH) operations. FinOptic-LBLF meets or exceeds ITU Recommendations G657(Category A), IEC 60793-2-50(TypeB1.3)

SPECIFICATIONS - FINOPTIC / LBLF(G657A1) / 07 / 13

MAX ATTENUATION (dB/km)		
At 1310 nm	≤ 0.34 dB/Km	
At 1550 nm	≤ 0.21 dB/Km	
At 1490 nm	≤ 0.24 dB/Km	
At 1625 nm	≤ 0.23 dB/Km	
POINT DISCONTINUITY		
At 1310 nm	≤ 0.05 dB	
At 1550 nm	≤ 0.05 dB	
SPECTRAL ATTENUATION		
Bet 1285-1360 nm	≤ 0.37dB/Km	
Bet 1360-1480 nm	≤ Atten at 1310 dB/Km	
Bet 1480-1525 nm	≤ 0.34 dB/Km	
Bet 1525-1625 nm	≤ 0.23 dB/Km	
Attenuation at 1380 to 1390*	≤ Atten at 1310 dB/Km	
*Attenuation value at this wavelength represents post hydrogen aging performance		
CHROMATIC DISPERSION		
1285-1330 nm	≤ 3.5ps/nm.km	
1270-1340 nm	≤ 5.3ps/nm.km	
At 1550 nm	≤ 18ps/nm.km	
At 1625 nm	≤ 22ps/nm.km	
Zero Dispersion wavelength	1300 to 1324 nm	
Zero Dispersion Slope	≤ 0.092 ps/nm ^ 2.Km	
MAX PMD INDIVIDUAL FIBER		
At 1310 nm	≤ 0.1 ps/sqrt Km	
At 1550 nm	≤ 0.1 ps/sqrt Km	
FIBER PMD Link Design Value*	≤ 0.06 ps/sqrt Km	
*The cable process can affect the PMD link property strongly		
CUT-OFF WAVELENGTH		
Cabled Cut-off wavelength.	≤ 1260 nm	
MODE FIELD DIAMETER		
At 1310 nm	8.8 ± 0.6 μm	
GEOMETRICAL PARAMETERS		
Clad Diameter	125 ± 0.7 μm	
Cladding Non Circularity	≤ 0.80 %	
Mode Field Concentricity Error	≤ 0.50 μm	
Coating Diameter	242 ± 7 μm	
Coating/Cladding Concentricity Error	≤ 12 μm	
MECHANICAL PROPERTIES		
Proof Test - The entire fiber length is subjected to tensile stress of 100Kpsi (0.7 Gpa). This is equivalent to 1% strain		
DYNAMIC TENSILE STRENGTH		
Un-aged	≥ 550 Kpsi (3.80 Gpa)	
Aged	≥ 440 Kpsi (3.00 Gpa)	
Fiber Curl	≥ 4.0 mts	
MACRO BEND LOSS: (Mandrel Dia/Turn/Wavelength)		
30mm/10 turn/ 1550 nm	≤ 0.25 dB	
30mm/10 turn/ 1625 nm	≤ 1.0 dB	
20mm/1turn/ 1550 nm	≤ 0.75 dB	
20mm/1turn/ 1625 nm	≤ 1.5 dB	
Coating Strip Force (Average)	1.3 TO 8.9 N	
Dynamic Fatigue Typical (nd)	≥ 20	
Static Fatigue Typical (ns)	≥ 20	
ENVIORNMENTAL CHARACTERISTICS		
Temperature Dependence(-60 deg C to + 85 deg C) Induced Attenuation At 1550,1625 nm	≤ 0.05 dB/Km	
Temperature Humidity Cycling (- 10 deg C to + 85 degC at 95% RH) Induced Attenuation At 1550,1625 nm	≤ 0.05 dB/Km	
Water immersion (23 ± 2 deg C) induced attenuation At 1550,1625	≤ 0.05 dB/Km	
Heat Aging (85 ± 2 deg C) induced attenuation At 1550,1625 nm	≤ 0.05 dB/Km	
EFFECTIVE GROUP INDEX OF REFRACTION*		
Effective Group Index of Refraction at 1310nm	1.4674	
Effective Group Index of Refraction at 1550nm	1.4679	
Effective Group Index of Refraction at 1625nm	1.4679	
*Typical Values		
Fiber Length Per Reel	≤ 50.4	
Fiber with enhanced properties/customized specifications can be provided on request		

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FinOptic – NZDSF



FinOptic-NZDSF fiber is designed to operate across a window of wavelengths near 1550nm with small amount of dispersion. FinOptic-NZDSF fibre is optimized for use in national long haul backbone networks. Due to its lower dispersion in the 1550nm window it is an ideal and cost effective solution for DWDM operations. FinOptic-NZDSF meets or exceeds ITU Recommendations G655.

FinOptic- NZDSF

MAX ATTENUATION (dB/km)	
At 1550 nm	≤ 0.22 dB/Km
At 1625 nm	≤ 0.24 dB/Km
Attenuation at 1383±3nm*	≤ 0.40 dB/Km
*Attenuation value at this wavelength represents post hydrogen aging performance	
POINT DISCONTINUITY	
At 1550 nm	≤ 0.1 dB
At 1625 nm	≤ 0.1 dB
CHROMATIC DISPERSION	
1530-1565	2.0 - 6.0 ps/nm.km
1565-1625	4.5 - 11.2 ps/nm.km
POLARIZATION MODE DISPERSION*	
PMD Individual Fiber at 1550 nm	≤ 0.2 ps/sqrt Km
Cabled Fiber at 1550 nm	≤ 0.3 ps/sqrt Km
*The cable process can affect the PMD link property strongly	
CUT-OFF WAVELENGTH	
Cable Cut-off Wavelength	≤ 1450nm
MODE FIELD DIAMETER	
At 1550 nm	9.6±0.4µm
GEOMETRICAL PARAMETERS	
Clad Diameter	≤ 125 ± 0.7µm
Cladding Non Circularity	≤ 0.80 %
Mode Field Concentricity Error	≤ 0.50µm
Coating Diameter	242 ± 7µm
Coating/Cladding Concentricity Error	≤ 12.0µm
Coating Non Circularity	≤ 4 %
MECHANICAL PROPERTIES	
Fiber Proof Test for minimum strain level	1%
DYNAMIC TENSILE STRENGTH	
Tensile Strength(Median) for 0.5mts specimen length- Un-aged	≥ 550 Kpsi (3.80 Gpa)
Tensile Strength(Median) for 0.5mts specimen length- Aged	≥ 440 Kpsi (3.00 Gpa)
Tensile Strength(Median) for 10mts specimen length- Un-aged	≥ 500 Kpsi (3.45 Gpa)
Fiber Curl	≥ 4.0 mts
MACRO BEND LOSS: (Mandrel Dia/Turn/Wavelength)	
60mm/100 turn/ 1550 nm	≤ 0.05 dB
60mm/100 turn/ 1625 nm	≤ 0.1 dB
32mm/1turn/ 1550 nm	≤ 0.50 dB
Coating Strip Force (Average)	1 to 5 N
Dynamic Fatigue Typical (nd)	≥ 20
Static Fatigue Typical (ns)	≥ 20
ENVIRONMENTAL CHARACTERISTICS	
Temperature Dependence (-60 deg C to + 85 deg C) Induced Attenuation	
At 1550 nm	≤ 0.05 dB/Km
At 1625 nm	≤ 0.05 dB/Km
Temperature Humidity Cycling (- 10 deg C to + 85 deg C at 98%RH) Induced Attenuation	
At 1550 nm	≤ 0.05 dB/Km
At 1625 nm	≤ 0.05 dB/Km
Water immersion (23 ± 2 deg C) induced attenuation	
At 1550 nm	≤ 0.05 dB/Km
At 1625 nm	≤ 0.05 dB/Km
Heat Aging (85 deg C) Induced Attenuation	
At 1550 nm	≤ 0.05 dB/Km
At 1625 nm	≤ 0.05 dB/Km
Damp Heat (30 days, 85 deg C at 85 % RH) Induced Attenuation	
At 1550 nm	≤ 0.05 dB/Km
At 1625 nm	≤ 0.05 dB/Km
EFFECTIVE GROUP INDEX OF REFRACTION*	
Effective Group Index of Refraction at 1550nm	1.4690
Effective Group Index of Refraction at 1625nm	1.4690
*Typical Values	
Fiber Length Per Reel	≤ 50.4
Fiber with enhanced properties/customised specifications can be provided on request	

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FinOptic - LWPF fibre is designed for transmission systems over the entire wavelength range from 1260 to 1625 nm, and is characterized by attenuation at 1380 - 1386nm band being less than attenuation at 1310 nm. FinOptic - LWPF is optimized for use in metropolitan, local and access networks for long distances due to low attenuation across the entire band and low PMD. It is an ideal & cost effective solution for CWDM operations. It provides outstanding long term reliability due to its immunity to hydrogen aging. FinOptic - LWPF meets or exceeds ITU Recommendations G652 (Categories C & D), IEC60793-1-51, IEC60793-1-52, IEC60793-1-53

SPECIFICATIONS - FINOPTIC / LWPF / A / 05 / 07 / 16

<p>MAX. ATTENUATION</p> <p>AT 1310 nm ≤ 0.34 dB/Km</p> <p>AT 1550 nm ≤ 0.21 dB/Km</p> <p>AT 1490 nm ≤ 0.24 dB/Km</p> <p>AT 1625 nm ≤ 0.23 dB/Km</p> <p>AT 1383 nm* ≤ Attenuation at 1310 nm*</p> <p>*Attn value at this wavelength represents post hydrogen aging performance strongly</p> <p>ATTENUATION Vs WAVELENGTH</p> <p>Between 1285 to 1330 nm (with reference to 1310nm) ≤ 0.03 dB/Km</p> <p>Between 1525 to 1575nm (with reference to 1550nm) ≤ 0.02 dB/Km</p> <p>POINT DISCONTINUITY</p> <p>Point Discontinuity at 1310 nm ≤ 0.05 dB</p> <p>Point Discontinuity at 1550 nm ≤ 0.05 dB</p> <p>CHROMATIC DISPERSION</p> <p>Between 1285 to 1330 nm ≤ 3.5 ps/nm.km</p> <p>Between 1270 to 1340 nm ≤ 5.3 ps/nm.km</p> <p>AT 1550 nm ≤ 18 ps/nm.km</p> <p>AT 1625 nm ≤ 22.0 ps/nm.km</p> <p>Zero Dispersion Wavelength 1300 nm to 1324 nm</p> <p>Zero Dispersion Slope ≤ 0.092 ps/nm ^ 2.Km</p> <p>MAX PMD INDIVIDUAL FIBER</p> <p>At 1310 nm ≤ 0.2 ps/sqrt Km</p> <p>At 1550 nm ≤ 0.2 ps/sqrt Km</p> <p>FIBER PMD Link Design Value* ≤ 0.1 ps/sqrt Km</p> <p>*The cable process can affect the PMD link property strongly</p> <p>CUTOFF WAVELENGTH</p> <p>Cable Cut-off Wavelength ≤ 1260 nm</p> <p>MODE FIELD DIAMETER</p> <p>At 1310 nm 9.2 ± 0.4 μm</p> <p>At 1550 nm 10.4 ± 0.5 μm</p> <p>GEOMETRICAL PROPERTIES</p> <p>Clad Diameter 125 ± 1.0 μm</p> <p>Cladding Non Circularity ≤ 0.8 %</p> <p>Mode Field Concentricity Error ≤ 0.5 μm</p> <p>Coating Diameter 242 ± 7 μm</p>	<p>Coating/Cladding Concentricity Error ≤ 12 μm</p> <p>MECHANICAL PROPERTIES</p> <p>Proof Test - The entire fiber length is subjected to a tensile stress of 100Kpsi(0.7Gpa). This is equivalent to 1% Strain</p> <p>DYNAMIC TENSILE STRENGTH</p> <p>Unaged ≥ 550 Kpsi (3.80Gpa)</p> <p>Aged ≥ 440 Kpsi (3.00 Gpa)</p> <p>Fiber Curl ≥ 4.0 Meter</p> <p>MACRO BEND LOSS: (Mandrel Dia/Turn/Wavelength)</p> <p>32mm/1 turn/ 1550 nm ≤ 0.5 dB</p> <p>50mm/100 turn/ 1310 nm ≤ 0.05 dB</p> <p>60mm/100 turn/ 1550 nm ≤ 0.05 dB</p> <p>60mm/100 turn/ 1625 nm ≤ 0.10 dB</p> <p>Coating Strip Force 1.3N to 8.9N</p> <p>Dynamic Fatigue Typical (nd) ≥ 20</p> <p>Static Fatigue Typical (ns) ≥ 20</p> <p>ENVIRONMENTAL CHARACTERISTICS</p> <p>Temperature Dependence (-60 deg C to + 85 deg C) Induced Attenuation At 1550,1625 nm ≤ 0.05 dB/Km</p> <p>Temperature Humidity Cycling (- 10 deg C to + 85 degC at 95% RH) Induced Attenuation At 1550,1625 nm ≤ 0.05 dB/Km</p> <p>Water immersion (23 ± 2 deg C) induced attenuation At 1550,1625 nm ≤ 0.05 dB/Km</p> <p>Heat Aging (85 ± 2 deg C) induced attenuation At 1550,1625 nm ≤ 0.05 dB/Km</p> <p>EFFECTIVE GROUP INDEX OF REFRACTION*</p> <p>Effective Group Index of Refraction at 1310nm 1.4674</p> <p>Effective Group Index of Refraction at 1550nm 1.4679</p> <p>Effective Group Index of Refraction at 1625nm 1.4679</p> <p>*Typical values</p> <p>Fiber length per reel ≤ 50.4 Km</p> <p>Fiber with enhanced properties / customized specifications can be provided on request</p>
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FinOptic - LWPf PREMIUM



FinOptic - LWPf Premium fibre is designed for transmission systems over the entire wavelength range from 1260 to 1625 nm, and is characterized by attenuation at 1380 to 1386nm band being less than attenuation at 1310 nm. FinOptic - LWPf Premium is optimized for use in metropolitan, local and access networks due to low attenuation across the entire band and low PMD. It is an ideal & cost effective solution for CWDM operations. It provides outstanding long term reliability due to its immunity to hydrogen aging. FinOptic - LWPf Premium fibre meets or exceeds ITU Recommendations G652 (Categories C & D), IEC60793-1-51, IEC60793-1-52, IEC60793-1-53

SPECIFICATIONS - FinOptic - LWPf Premium / B / 05 / 07 / 16

MAX. ATTENUATION	
AT 1310 nm	≤ 0.34 dB/Km
AT 1550 nm	≤ 0.21 dB/Km
AT 1490 nm	≤ 0.24 dB/Km
AT 1625 nm	≤ 0.23 dB/Km
AT 1383 nm*	≤ 0.31*dB/Km
*Attn value at this wavelength represents post hydrogen aging performance strongly	
ATTENUATION Vs WAVELENGTH	
Between 1285 to 1330 nm (with reference to 1310nm)	≤ 0.03 dB/Km
Between 1525 to 1575nm (with reference to 1550nm)	≤ 0.02 dB/Km
POINT DISCONTINUITY	
Point Discontinuity at 1310 nm	≤ 0.05 dB
Point Discontinuity at 1550 nm	≤ 0.05 dB
CHROMATIC DISPERSION	
Between 1285 to 1330 nm	≤ 3.5 ps/nm.km
Between 1270 to 1340 nm	≤ 5.3 ps/nm.km
AT 1550 nm	≤ 17.5 ps/nm.km
AT 1625 nm	≤ 22.0 ps/nm.km
Zero Dispersion Wavelength	1302 nm to 1322 nm
Zero Dispersion Slope	≤ 0.090 ps/nm ² .Km
MAX PMD INDIVIDUAL FIBER	
At 1310 nm	≤ 0.1 ps/sqrt Km
At 1550 nm	≤ 0.1 ps/sqrt Km
FIBER PMD Link Design Value*	≤ 0.06 ps/sqrt Km
*The cable process can affect the PMD link property strongly	
CUTOFF WAVELENGTH	
Cable Cut-off Wavelength	≤ 1260 nm
MODE FIELD DIAMETER	
At 1310 nm	9.2 ± 0.4 μm
At 1550 nm	10.4 ± 0.5 μm
GEOMETRICAL PROPERTIES	
Clad Diameter	125 ± 0.7 μm
Cladding Non Circularity	≤ 0.8 %
Mode Field Concentricity Error	≤ 0.5 μm
Coating Diameter	242 ± 7 μm
Coating/Cladding Concentricity Error	≤ 12 μm
MECHANICAL PROPERTIES	
Proof Test - The entire fiber length is subjected to a tensile stress of 100Kpsi(0.7Gpa). This is equivalent to 1% Strain	
DYNAMIC TENSILE STRENGTH	
Unaged	≥ 550 Kpsi (3.80Gpa)
Aged	≥ 440 Kpsi (3.00 Gpa)
Fiber Curl	≥ 4.0 Meter
MACRO BEND LOSS: (Mandrel Dia/Turn/Wavelength)	
32mm/1 turn/ 1550 nm	≤ 0.05 dB
50mm/100 turn/ 1310 nm	≤ 0.05 dB
60mm/100 turn/ 1550 nm	≤ 0.05 dB
60mm/100 turn/ 1625 nm	≤ 0.10 dB
Coating Strip Force	1.3N to 8.9N
Dynamic Fatigue Typical (nd)	≥ 20
Static Fatigue Typical (ns)	≥ 20
ENVIRONMENTAL CHARACTERISTICS	
Temperature Dependence(-60 deg C to + 85 deg C) Induced	≤ 0.05 dB/Km
Attenuation At 1550,1625 nm	
Temperature Humidity Cycling (- 10 deg C to + 85 deg C at 95% RH) Induced Attenuation At 1550,1625 nm	≤ 0.05 dB/Km
Water immersion (23 ± 2 deg C) induced attenuation At 1550,1625 nm	≤ 0.05 dB/Km
Heat Aging (85 ± 2 deg C) induced attenuation At 1550,1625 nm	≤ 0.05 dB/Km
EFFECTIVE GROUP INDEX OF REFRACTION*	
Effective Group Index of Refraction at 1310nm	1.4674
Effective Group Index of Refraction at 1550nm	1.4679
Effective Group Index of Refraction at 1625nm	1.4679
*Typical values	
Fiber length per reel	≤ 50.4 Km
Fiber with enhanced properties / customized specifications can be provided on request	

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