

Sales Catalog of HNK Telecommunication Products

Fiber Optic Cable

Single Mode 9/125 G657A1

This single mode fiber encompasses all the features of G652D fiber and provides good resistance to macro-bending. It has low macro-bending sensitivity and low water-peak level. It is comprehensively optimized for use in O-E-S-C-L band (1260 -1625 nm).

It offers good resistance to additional losses due to low macro bending in the 1600 nm wavelength region. This not only supports L-band applications but also allows for easy installation without excessive care when storing the fiber, for example, in splicing cassettes. For cable use inside buildings, the fiber supports installation with small cable bending radii and compact organizers. The bending induced loss at 1625 nm no more than 0.5 dB for one wind with 10 mm radius.

The single mode fiber meets or exceeds the ITU-T Recommendation G.652.D/G.657.A1 including the IEC 60793-2-50 type B1.3/B6.a1 Optical Fiber Specification.

Optical Characteristics for Single Mode 9/125 μm (G657A1)

CHARACTERISTIC	CONDITION	SPECIFIC VALUE	UNIT
Optical Characteristics			
Attenuation	1310 nm	≤ 0.35	[dB/km]
	1383 nm (after H ₂ -aging)	≤ 0.35	
	1460 nm	≤ 0.25	
	1550 nm	≤ 0.21	
	1625 nm	≤ 0.23	
Attenuation vs. Wavelength Max. α Difference	1285-1330 nm	≤ 0.03	[dB/km]
	1525-1575 nm	≤ 0.02	
Dispersion Coefficient	1285-1340 nm	$\geq -3.4 \leq 3.4$	[ps/(nm.km)]
	1550 nm	≤ 18	
	1625 nm	≤ 22	
Zero Dispersion Wavelength		1300-1324	[nm]
Zero Dispersion Slope		≤ 0.092	[ps/(nm ² .km)]
Zero Dispersion Slope Typical Value		0.086	[ps/(nm ² .km)]
PMD	Maximum Individual Fiber	≤ 0.10	[ps/ $\sqrt{\text{km}}$]
	Link Design Value (M=20, Q=0.01%)	≤ 0.06	
	Typical Value	0.04	
Cable Cutoff Wavelength λ_{cc}		≤ 1260	[nm]
Mode Field Diameter (MFD)	1310 nm	8.4~9.2	[μm]
	1550 nm	9.3~10.3	[μm]
Effective Group Index of Refraction (N_{eff})	1310 nm	1.466	
	1550 nm	1.467	
Point Discontinuities	1310 nm	≤ 0.05	[dB]
	1550 nm	≤ 0.05	[dB]
Macro Bending Induced Attenuation			
10 Turns Around a Mandrel @ 15mm Radius	1550 nm	≤ 0.25	[dB]
10 Turns Around a Mandrel @ 15mm Radius	1625 nm	≤ 1.00	[dB]
1 Turn Around a Mandrel @ 10mm Radius	1550 nm	≤ 0.75	[dB]
1 Turn Around a Mandrel @ 10mm Radius	1625 nm	≤ 1.50	[dB]
Geometrical Characteristics			
Cladding Diameter		125.0 \pm 0.7	[μm]
Cladding Non-Circularity		≤ 0.7	[%]
Coating Diameter		245 \pm 5	[μm]
Coating/Cladding Concentricity Error		≤ 12.0	[μm]
Coating Non-Circularity		≤ 6.0	[%]
Core/Cladding Concentricity Error		≤ 0.5	[μm]
Curl (Radius)		≥ 4	[m]
Delivery Length		2.1 to 50.4	[km/reel]
Environmental Characteristics			
Temperature Dependence (Induced Attenuation)	1310 nm, 1550 nm & 1625 nm		
Temperature Humidity Cycling (Induced Attenuation)	-60°C to +85°C	≤ 0.05	[dB/km]
Damp Heat Dependence (Induced Attenuation)	-10°C to +85°C, 98% RH	≤ 0.05	[dB/km]
Water Soak Dependence (Induced Attenuation)	85°C and 85% RH, for 30days	≤ 0.05	[dB/km]
Dry Heat Aging	23°C, for 30days	≤ 0.05	[dB/km]
	85°C	≤ 0.05	[dB/km]
Mechanical Characteristics			
Proof Test		≥ 9.0	[N]
		≥ 1.0	[%]
		≥ 100	[Kpsi]
Coating Strip Force	Typical Average Force	1.5	[N]
	Peak Force	≥ 1.3 & ≤ 8.9	[N]
Dynamic Stress Corrosion Susceptibility Parameter (N_d , Typical)		≥ 27	