

Part No. MCSM



Cable Description

Match Cladding Single-mode Optical Fiber

Matched Cladding Single mode Fiber (MCSM) is optimized for performance at the 1310 nm and 1550 nm operating wavelengths. The fiber has lowest dispersion at 1310 nm and lowest attenuation at 1550 nm or both 1310 nm and 1550 nm.

Application

Due to the low attenuation, low dispersion and low Polarization Mode Dispersion (PMD), MCSM fiber can be widely used in the high bit rate. Long distance transmission links. e.g. long haul telecommunication, trunk lines, CATV networks feeder loops and so on. Uninet MCSM fiber is applicable in all cable type including ribbon cable, loose tube stranded cable, slotted core cable, unitube cable and tight-buffer cable. Uninet optical fibers are compatible with fibers manufactured with other processes.

Cable Norms

Uninet MCSM fiber complies with or exceeds the ITU recommendation G.652 Optical Fiber Specification. Uninet tightens many parameters of fiber products.

Process and Coating

Uninet fibers are manufactured using the advanced Plasma Activated Chemical Vapor Deposition (PCVD) process. Because of the inherent advantages of the process, Uninet fibers show extremely refined refractive index (RI) profile control, excellent geometrical performance, low attenuation, etc. The optical fiber is coated with a double layer UV curable acrylate, type DLPC9, which gives the fiber a good protection. Designed for more stringent tight-buffer cable application, the fiber also performs perfectly in loose buffer constructions and demonstrates a high resistance to micro-bending. The coating offers an excellent stable coating strip force over a wide range of environmental conditions and the coating stripping leaves no residues on the bare glass fiber. Ribbon tests show excellent performance in 60°C water soak tests, exceeding 100 days. The DLPC9 coated optical fibers show high and stable values for dynamic stress corrosion susceptibility parameter (nd), which offers a greatly improved applicability to the fiber when used in harsh environments.

Cable Characteristic

- Low attenuation and low dispersion satisfying the operation demand at 1310 nm and 1550 nm
- Low PMD satisfying the high bit rate and long distance transmission links
- DLPC9 coating offering good protection and excellent strip force stability
- Accurate geometrical parameters that insure low splicing loss and high splicing efficiency

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Fiber Core Performance

Characteristics	Conditions		Specified Values	Units
Optical characteristics				
Attenuation	1310 nm		≤0.36	[dB/km]
	1550 nm		≤0.22	[dB/km]
Dispersion coefficient	1285~1340 nm	≥-3.0	≤3.0	[ps/(nm·km)]
	1550 nm		≤18	[ps/(nm·km)]
Zero dispersion wavelength		≥1302	≤1322	[nm]
Zero dispersion slope			≤0.091	[ps/(nm·km)]
Polarization Mode Dispersion			≤0.2	[ps/√km]
PMD Maximum Individual Fiber			≤0.08	[ps/√km]
PMD Link Design Value				
Fiber cutoff wavelength λ_c		≥1180	≤1330	[nm]
Cable cutoff wavelength λ_c			≥1260	[nm]
Mode field diameter (MFD)	1310 nm		9.2±0.4	[μm]
	1550 nm		10.4±0.8	[μm]
Group index of refraction (Typical)	1310 nm		1.466	
	1550 nm		1.467	
Backscatter characteristics		1310 nm, 1550 nm		
Step (mean of bidirectional measurement)			≤0.05	[dB]
Irregularities over fiber length and point discontinuity			≤0.05	[dB]
Difference in backscatter coefficient			≤0.03	[dB/km]
Attenuation uniformity			≤0.01	[dB/km]
Geometrical characteristics				
Cladding diameter			125.0±1.0	[μm]
Cladding non-circularity			≤1.0	[%]
Coating diameter			242±7	[μm]
Coating/cladding concentricity error			≤12.0	[μm]
Coating non-circularity			≤6.0	[%]
Core/cladding concentricity error			≤0.6	[μm]
Curl (radius)			≥4	[m]
Delivery length		≥2.1	≤50.4	[km/reel]
Environmental characteristics		1310 nm, 1550 nm		
Temperature dependence				
Induced attenuation	-60°C to +85°C		≤0.05	[dB/km]
Temperature-humidity cycling				
Induced attenuation	-10°C to +85°C, 90% R.H.		≤0.05	[dB/km]
Damp heat dependence				
Induced attenuation	85°C, 85% R.H., 30 days		≤0.05	[dB/km]
Water soak dependence				
Induced attenuation	20°C for 30 days		≤0.05	[dB/km]

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Table Content Continued:

Mechanical characteristics				
Proof test	off line		≥9.0	[N]
			≥1.0	[%]
			≥100	[KPSI]
Bending Dependence Induced Attenuation	1550 nm			
	1 turn, 32 mm diameter		≤0.50	[dB]
	100 turns, 60 mm diameter		≤0.05	[dB]
Coating strip force	typical average force		1.7	[N]
	peak force	≥1.3	≤8.9	[N]
Dynamic stress corrosion susceptibility parameter (n _d , Typical)			≥27	