

Specialty Fibre for Sensing

Distributed Temperature System-multimode Fibre (DTS-MMF)

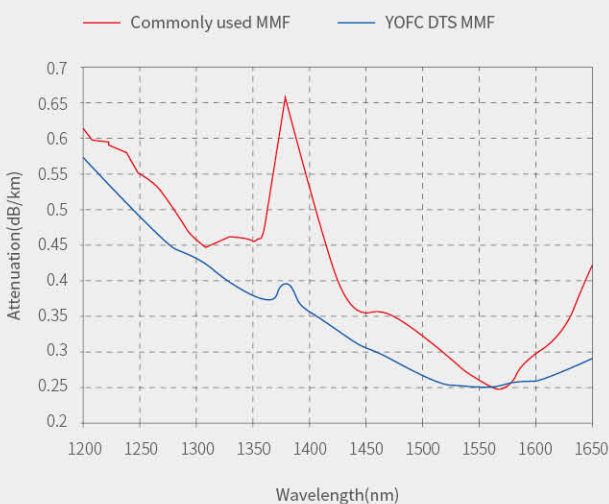
The distributed temperature system-multimode fibre (DTS-MMF), adopts advanced plasma chemical vapor deposition (PCVD) process which can insure precise waveguide design and smooth graded index profile. Because of the above process advantages and optimized preform parameter, the fibre has excellent optical and geometric properties at long wavelength (1300nm, 1550nm). Additionally, the fibre can resist high temperature by using special coating material.

Characteristics

- Low attenuation at DTS operating wavelength 1450nm, 1550nm and 1650 nm
- High bandwidth at C-band (especially at 1550nm)
- High temperature resistance
- Low splicing loss
- Excellent bending insensitivity

Applications

- Distributed temperature system



Compared with communication multimode fibre, the advantages of DTS-MMF are as follows:

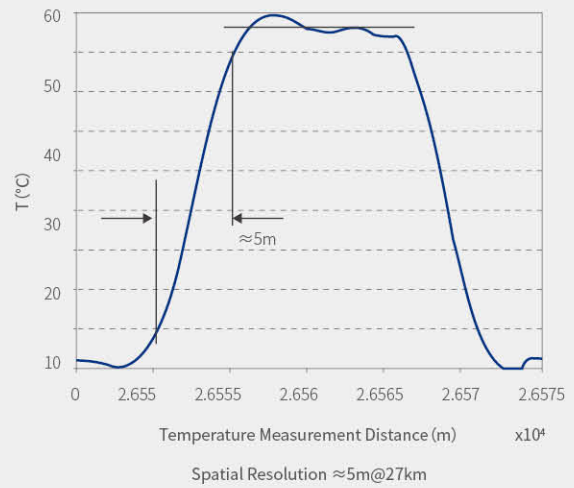
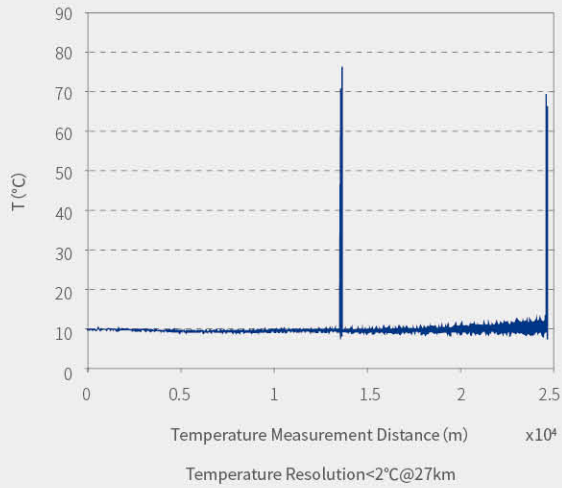
1. Low attenuation at DTS operating wavelength

- The lower attenuation of the DTS-MMF at the wavelength of 1450nm, 1550nm and 1650nm can increase the distance of the distributed temperature measurement system

2. High bandwidth at 1550nm

- According to IEC 60793-1-41-2010 (bandwidth), the actual measured bandwidth at 1550nm of DTS-MMF can exceed more than 1000MHz·km, which effectively improves the spatial resolution of the long-distance distributed temperature measurement system

DTS Host Measured Result



Specifications

Fibre Type	GI 62.5/125-27/250DTS	GI 50/125-20/250DTS
Part No.	GI2015-B	GI2012-B
Optical Properties		
Numerical Aperture (NA)	0.275 ± 0.020	0.195 ± 0.020
Loss	@1300nm (dB/km)	≤ 0.60
	@1450nm (dB/km)	≤ 0.50
	@1550nm (dB/km)	≤ 0.40
	@1650nm (dB/km)	≤ 0.50
Splicing Loss (dB)	≤ 0.1	≤ 0.1
Bandwidth	@1300nm (MHz·km)	≥ 200
	@1550nm (MHz·km)	≥ 800
Geometrical Properties		
Core Radium (μm)	62.5 ± 2.0	50.0 ± 2.0
Cladding Diameter (μm)	125.0 ± 1.0	125.0 ± 1.0
Fibre Diameter (μm)	245.0 ± 7.0	245.0 ± 7.0
Core/Cladding Concentricity (μm)	≤ 1.5	≤ 1.5
Core Non-circularity (%)	≤ 5.0	≤ 5.0
Cladding Non-circularity (%)	≤ 1.0	≤ 1.0
Mechanical Properties		
Proof Test (kpsi)	≥ 100	≥ 100
Environmental Properties		
Operating Temperature Range ($^{\circ}\text{C}$)	-40 to 85	-40 to 85

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