



Multimode Fiber

MaxCap-OM2⁺ - 10 Gb/s GIMM Optical Fiber

High-speed laser-launch multimode fiber (OM2⁺)



Issue date: 12/10
Supersedes: 08/10

850 nm Laser-Optimized 50 μm Multimode Fiber for 10 Gb/s application over 150 meters (OM2⁺)

To support, low-cost, short reach 10 Gb/s applications Draka has developed a 850 nm laser-optimized 50 μm multimode fiber: MaxCap-OM2⁺ multimode fiber, formerly known as MaxCap150. These applications are in particular Local Area Networks (LAN) backbones up to 150 m (10GBASE-SX), Storage Area Networks (SAN), and Central Office connections. The MaxCap multimode fibers are produced by the proprietary Plasma-activated Chemical Vapor Deposition process (PCVD), acknowledged worldwide as offering the best core profile accuracy in multimode fiber.

Application in other LAN systems

Thanks to the special bandwidth performance of the MaxCap-OM2⁺ multimode fiber, a broad range of legacy and 10 Gb/s applications can be supported. Together with other multimode fiber products produced by Draka, this range of multimode products offers end-users the best possible optimization of their networks in the most flexible way.

The MaxCap-OM2⁺ multimode fiber complies with or exceeds IEC 60793-2-10 type A1a.1 Optical Fiber Specification, ISO/IEC 11801 OM-2 specification, TIA/EIA-492AAAB detail specification and Telcordia GR-20-CORE and GR-409-CORE specifications.

Features	Advantages
OM2 ⁺ type MMF	The MaxCap-OM2 ⁺ fully supports 850 nm (SX) serial 10 Gb/s applications over 150 m. An effective modal bandwidth (EMB) of 950 MHz.km at 850 nm under laser launch is ensured by means of 850 nm DMD specifications.
The overfilled launch (OFL) bandwidth of the MaxCap-OM2 ⁺ Multimode fiber at 850 nm is ≥ 700 MHz.km; at 1300 nm the OFL bandwidth is ≥ 500 MHz.km	OFL bandwidth performance gives strong support to legacy applications. The MaxCap-OM2 ⁺ Multimode fiber offers a smooth, low-cost migration path for premises backbone cabling from 10 Mb/s up to 10 Gb/s over 150 m
No need to use expensive mode-conditioning patch cords for 1300 nm laser based systems such as 1000BASE-LX	Reduced system costs
Coated with the dual layer UV Acrylate DLPC9	MaxCap-OM2 ⁺ Multimode fibers have excellent micro-bending behavior, which results in easy cabling and installation, supporting the maximum cabled attenuation at 850 nm of 3.0 dB/km

Key Industry Leading Milestones



MaxCap-OM2⁺ - 10 Gb/s GIMM Optical Fiber

High-speed laser-launch multimode fiber (OM2⁺)

Product Type: 50 / 125 / 242 μ m Multimode Fiber (OM2⁺)
Coating Type: Dual Layer Primary Coating (DLPC9)

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Characteristics	Conditions	Specified Values	Units		
Optical Specifications (Uncabled fiber)					
Attenuation Coefficient	850 nm	≤ 2.2	≤ 2.3	≤ 2.4	dB/km
	1300 nm	≤ 0.4	≤ 0.5	≤ 0.6	dB/km
Numerical Aperture		0.200 \pm 0.015			
Chromatic Dispersion					
Zero Dispersion Wavelength, λ_0		1295 $\leq \lambda_0 \leq$ 1340			nm
Zero Dispersion Slope, S_0	1295 nm $\leq \lambda_0 \leq$ 1310 nm	≤ 0.105			ps/nm ² .km
	1310 nm $\leq \lambda_0 \leq$ 1340 nm	≤ 0.000375 (1590 - λ_0)			ps/nm ² .km
Overfilled Modal Bandwidth ¹	850 nm	≥ 700			MHz.km
	1300 nm	≥ 500			MHz.km
Effective Modal Bandwidth	850 nm	≥ 950			MHz.km
Fiber Capacity	850 nm; 10 Gb/s	≤ 150			m
DMD	850 nm	See Note 2			
Bending Loss	100 turns, D=75 mm; 850nm / 1300nm	≤ 0.5			dB
Backscatter Characteristics ³					
Point Discontinuity ⁴	850 nm, 1300 nm	≤ 0.1			dB
Irregularities over fiber length	850 nm, 1300 nm	≤ 0.1			dB
Reflections		Not Allowed			
Group Index of Refraction (Typical)	850 nm	1.482			
	1300 nm	1.477			

Geometrical Specifications

Core Diameter		50 \pm 2	μ m
Core Non-Circularity		≤ 5	%
Core/Cladding Concentricity Error		≤ 1	μ m
Cladding Diameter		125.0 \pm 1.0	μ m
Cladding Non-Circularity		≤ 0.7	%
Coating Diameter		242 \pm 5	μ m
Coating Non-Circularity		≤ 5	%
Coating/Cladding Concentricity Error		≤ 6	μ m
Length	Standard lengths up to	8.8	km

Mechanical Specifications

Proof Test	Off line	> 0.7 (100)	GPa (kpsi)
Dynamic Tensile Strength (median value)	0.5 meter gauge length unaged and aged ⁵	> 3.8 (550)	GPa (kpsi)
Fatigue Parameter (Typical)	Dynamic fatigue, unaged and aged ⁵	$n_d > 25$	
Coating Strip Force	Average strip force, unaged and aged ⁶	1 to 3	N
	Peak strip force, unaged and aged ⁶	1.3 to 8.9	N

Environmental Specifications

Temperature Dependence	850 nm, 1300 nm; -60°C to +85°C	≤ 0.1	dB/km
Temperature-Humidity Cycling	850 nm, 1300 nm; -10°C to +85°C, 90% RH	≤ 0.1	dB/km
Watersoak Dependence	850 nm, 1300 nm; 20°C, 30 days	≤ 0.1	dB/km
Damp Heat Dependence	850 nm, 1300 nm; 85°C; 85% RH, 30 days	≤ 0.1	dB/km

1). The modal bandwidth is linearly normalized to 1 km, according to IEC 60793-2-10.

2). DMD specification [ps/m]:

DMD Templates	DMD Inner Mask (Radius 0 to 18 μ m)	DMD Outer Mask (Radius 0 to 23 μ m)
1	≤ 0.70	≤ 0.70

Note: A minimum effective system modal bandwidth-length product of 950 MHz.km is achieved when combining this 50 μ m fiber with transmitters meeting the following transmitter power distribution: Encircled Flux at radius 19 μ m \geq 86%. (Ref: TIA/EIA-492AAAC or IEC 60793-2-10)

3). OTDR measurement with 0.5 μ s pulse width.

4). Mean of bi-directional measurement.

5). Aging at 85°C, 85% RH, 30 days

6). Aging: • 23°C, 0°C and 45°C
• 30 days at 85°C and 85% RH
• 14 days water immersion at 23°C