



WAVEOPTICS

G.652.D

Optical Fiber Specifications

**TECHNICAL
INFORMATION**



WAVEOPTICS Fiber (F) G.652.D

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS G.652.D
Fiber Code		F
Attenuation	1310 nm	≤ 0.33 dB/km
	1550 nm	≤ 0.19 dB/km
Attenuation vs Wavelength Max. difference of α	1285-1330 nm	≤ 0.05 dB/km
	1525-1575 nm	≤ 0.05 dB/km
Mode field diameter	1310 nm	9.2 ± 0.4 μ m
Max. PMD per fiber		≤ 0.15 ps/ \sqrt km
Point discontinuities	1310 nm	≤ 0.05 dB
	1550 nm	≤ 0.05 dB
Cutoff wavelength		≤ 1260 nm
Dispersion values	1550 nm	≤ 18 ps/nm*km
	1625 nm	≤ 22 ps/nm*km





Physical Characteristics

CHARACTERISTICS	WAVEOPTICS G.652.D
Cladding diameter	$125.0 \pm 0.7 \text{ } \mu\text{m}$
Core-cladding concentricity error	$\leq 0.6 \text{ } \mu\text{m}$
Cladding non-circularity	$\leq 1.0 \%$
Coating diameter	$245.0 \pm 7 \text{ } \mu\text{m}$
Coating-cladding concentricity error	$\leq 12 \text{ } \mu\text{m}$

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS G.652.D
Temperature cycling	-60°C to $+85^{\circ}\text{C}$	$\leq 0.05 \text{ dB/km}$
Water immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.05 \text{ dB/km}$
High temperature aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.05 \text{ dB/km}$





WAVEOPTICS

G.655.C

Optical Fiber Specifications

**TECHNICAL
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WAVEOPTICS FIBER (G) **G.655.C**

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS G.655.C
Fiber Code		G
Attenuation	1550 nm	≤ 0.22 dB/km
	1625 nm	≤ 0.24 dB/km
Mode field diameter	1550 nm	9.6 ± 0.5 μ m
Max. PMD per fiber		≤ 0.15 ps/ \sqrt km
Point discontinuities	1550 nm	≤ 0.05 dB
	1625 nm	≤ 0.05 dB
Cutoff wavelength		≤ 1450 nm
Group refractive index	1550 nm	1.467
	1625 nm	1.467





Physical Characteristics

CHARACTERISTICS	WAVEOPTICS G.655.C
Curling	≥ 4 m
Cladding diameter	125.0 ± 1.0 μ m
Core-cladding concentricity error	≤ 0.64 μ m
Cladding non-circularity	≤ 1.0 %
Coating diameter	245.0 ± 7 μ m
Coating-cladding concentricity error	≤ 12 μ m

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS G.655.C
Temperature cycling	-60°C to $+85^{\circ}\text{C}$	≤ 0.05 dB/km
Damp heat aging	85°C at 85% RH	≤ 0.05 dB/km
Water immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	≤ 0.05 dB/km
High temperature aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	≤ 0.05 dB/km





WAVEOPTICS

G.657.A1

Optical Fiber Specifications

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WAVEOPTICS FIBER (T) **G.657.A1**

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS G.657.A1
Fiber Code		T
Attenuation	1310 nm	≤ 0.35 dB/km
	1550 nm	≤ 0.21 dB/km
	1625 nm	≤ 0.23 dB/km
Attenuation vs Wavelength Max. difference of α	1285-1330 nm	≤ 0.05 dB/km
	1525-1575 nm	≤ 0.05 dB/km
Mode field diameter	1310 nm	8.6 - 9.4 μ m
	1550 nm	9.6 - 10.6 μ m
Group refractive index	1310 nm	1.466
	1550 nm	1.467
Max. PMD per fiber		≤ 0.15 ps/ \sqrt km
Point discontinuities	1310 nm	≤ 0.05 dB/km
	1550 nm	≤ 0.05 dB/km
Cutoff wavelength		≤ 1260 nm





Physical Characteristics

CHARACTERISTICS	WAVEOPTICS G.657.A1
Cladding diameter	125.0 ± 0.7 μm
Core-cladding concentricity error	≤ 0.5 μm
Cladding non-circularity	≤ 1.0 %
Coating diameter	245.0 ± 7 μm
Coating-cladding concentricity error	≤ 12 μm

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS G.657.A1
Temperature cycling	-60°C to +85°C	≤ 0.05 dB/km
Temperature & humidity cycling	-10°C to +85°C at 95% RH	≤ 0.05 dB/km
Water immersion	23°C ± 2°C	≤ 0.05 dB/km
High temperature aging	85°C ± 2°C	≤ 0.05 dB/km





WAVEOPTICS

G.657.A2

Optical Fiber Specifications

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WAVEOPTICS FIBER (E) **G.657.A2**

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS G.657.A2
Fiber Code		E
Attenuation	1310 nm	≤ 0.35 dB/km
	1383 nm	≤ 0.35 dB/km
	1490 nm	≤ 0.25 dB/km
	1550 nm	≤ 0.21 dB/km
	1625 nm	≤ 0.23 dB/km
Attenuation vs Wavelength Max. difference of α	1285-1330 nm	≤ 0.05 dB/km
	1525-1575 nm	≤ 0.05 dB/km
Mode field diameter	1310 nm	8.2 - 9.0 μ m
	1550 nm	9.15 - 10.15 μ m
Group refractive index	1310 nm	1.466
	1550 nm	1.467
PMD link design value		≤ 0.1 ps/ \sqrt km
Max. PMD per fiber		≤ 0.15 ps/ \sqrt km
Point discontinuities	1310 nm	≤ 0.05 dB/km
	1550 nm	≤ 0.05 dB/km
Cutoff wavelength		≤ 1260 nm





Physical Characteristics

CHARACTERISTICS	WAVEOPTICS G.657.A2
Cladding diameter	125.0 ± 0.7 μm
Core-cladding concentricity error	≤ 0.5 μm
Cladding non-circularity	≤ 1.0 %
Coating diameter	245.0 ± 7 μm
Coating-cladding concentricity error	≤ 12 μm

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS G.657.A2
Temperature cycling	-60°C to +85°C	≤ 0.05 dB/km
Temperature & humidity cycling	-10°C to +85°C at 95% RH	≤ 0.05 dB/km
Water immersion	23°C ± 2°C	≤ 0.05 dB/km
High temperature aging	85°C ± 2°C	≤ 0.05 dB/km





WAVEOPTICS

G.657.B3

Optical Fiber Specifications

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WAVEOPTICS FIBER (N) G.657.B3

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS G.657.B3
Fiber Code		N
Attenuation	1310 nm	≤ 0.40 dB/km
	1383 nm	≤ 0.40 dB/km
	1490 nm	≤ 0.35 dB/km
	1550 nm	≤ 0.30 dB/km
Attenuation vs Wavelength Max. difference of α	1285-1330 nm	≤ 0.05 dB/km
	1525-1575 nm	≤ 0.05 dB/km
Mode field diameter	1310 nm	8.2 - 9.0 μ m
Group refractive index	1310 nm	1.466
PMD link design value		≤ 0.15 ps/ \sqrt km
Max. PMD per fiber		≤ 0.15 ps/ \sqrt km
Point discontinuities	1310 nm	≤ 0.05 dB/km
	1550 nm	≤ 0.05 dB/km
Cutoff wavelength		≤ 1260 nm





Physical Characteristics

CHARACTERISTICS	WAVEOPTICS G.657.B3
Cladding diameter	$125.0 \pm 0.7 \text{ } \mu\text{m}$
Core-cladding concentricity error	$\leq 0.5 \text{ } \mu\text{m}$
Cladding non-circularity	$\leq 1.0 \%$
Coating diameter	$245.0 \pm 7 \text{ } \mu\text{m}$
Coating-cladding concentricity error	$\leq 12 \text{ } \mu\text{m}$

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS G.657.B3
Temperature cycling	-60°C to $+85^{\circ}\text{C}$	$\leq 0.05 \text{ dB/km}$
Water immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.05 \text{ dB/km}$
High temperature aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.05 \text{ dB/km}$





WAVEOPTICS

OM1

Optical Fiber Specifications

**TECHNICAL
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WAVEOPTICS FIBER (B) OM1

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS OM1
Fiber Code		B
Attenuation	850 nm	≤ 2.9 dB/km
	1300 nm	≤ 0.7 dB/km
	1383 nm	≤ 2.0 dB/km
Attenuation Discontinuities	1300 nm	≤ 0.05 dB
Bandwidth (Overfilled Launch)	850 nm	≥ 200 MHz*km
	1300 nm	≥ 500 MHz*km
Numerical aperture		0.275 ± 0.015
Group refractive index	850 nm	1.497
	1300 nm	1.493
Zero dispersion wavelength λ_0		$1320 \leq \lambda_0 \leq 1365$ nm
Transmission link distance for 1Gb/s	850 nm	300 m





Physical Characteristics

CHARACTERISTICS	WAVEOPTICS OM1
Core diameter	$62.5 \pm 2.5 \text{ um}$
Cladding diameter	$125.0 \pm 1.0 \text{ um}$
Core-cladding concentricity error	$\leq 1 \text{ um}$
Cladding non-circularity	$\leq 1 \%$
Coating diameter	$242.0 \pm 7 \text{ um}$
Coating-cladding concentricity error	$\leq 10 \text{ um}$

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS OM1
Temperature cycling	-60°C to $+85^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
Water immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
High temperature aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$





WAVEOPTICS

OM2

Optical Fiber Specifications

**TECHNICAL
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WAVEOPTICS FIBER (L) OM2

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS OM2
Fiber Code		L
Attenuation	850 nm	≤ 2.3 dB/km
	1300 nm	≤ 0.7 dB/km
	1383 nm	≤ 2.0 dB/km
Attenuation Discontinuities	1330 nm	≤ 0.05 dB
Bandwidth (Overfilled Launch)	850 nm	≥ 750 MHz*km
	1300 nm	≥ 500 MHz*km
Laser EMB	850	≥ 1000 MHz*km
Numerical Aperture		0.2 ± 0.015
Group refractive index	850 nm	1.483
	1300 nm	1.478
Zero dispersion wavelength λ_0		$1295 \leq \lambda_0 \leq 1340$ nm
Marcobend attenuation 100 turns @ 37.5 mm radius	850 nm	≤ 0.05 dB
	1300 nm	≤ 0.15 dB





Physical Characteristics

CHARACTERISTICS	WAVEOPTICS OM2
Core diameter	$50 \pm 2.5 \text{ } \mu\text{m}$
Cladding diameter	$125.0 \pm 1.0 \text{ } \mu\text{m}$
Core-cladding concentricity error	$\leq 1.5 \text{ } \mu\text{m}$
Cladding non-circularity	$\leq 1 \%$
Coating diameter	$242.0 \pm 7 \text{ } \mu\text{m}$
Coating-cladding concentricity error	$\leq 10 \text{ } \mu\text{m}$

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS OM2
Temperature cycling	-60°C to $+85^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
Water immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
High temperature aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$





WAVEOPTICS

OM3

Optical Fiber Specifications

**TECHNICAL
INFORMATION**



WAVEOPTICS FIBER (M) OM3

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS OM3
Fiber Code		M
Attenuation	850 nm	≤ 2.3 dB/km
	1300 nm	≤ 0.7 dB/km
	1383 nm	≤ 2.0 dB/km
Attenuation Discontinuities	1300 nm	≤ 0.05 dB
Numerical aperture		0.2 ± 0.015
Bandwidth (Overfilled Launch)	850 nm	≥ 1500 MHz*km
	1300 nm	≥ 500 MHz*km
Laser EMB	850	≥ 2000 MHz*km
Group refractive index	850 nm	1.483
	1300 nm	1.478
Zero dispersion wavelength λ_0		$1295 \leq \lambda_0 \leq 1340$ nm
Transmission link distance for 10Gb/s (LX4)	850 nm	300 m
	1300 nm	300 m
Macrobend attenuation 100 turns @ 37.5 mm radius	850 nm	≤ 0.05 dB
	1300 nm	≤ 0.15 dB
Macrobend attenuation 2 turns @ 15 mm radius	850 nm	≤ 0.1 dB
	1300 nm	≤ 0.3 dB
Macrobend attenuation 2 turns @ 7.5 mm radius	850 nm	≤ 0.2 dB
	1300 nm	≤ 0.5 dB



Physical Characteristics

CHARACTERISTICS	WAVEOPTICS OM3
Core diameter	$50 \pm 2.5 \text{ } \mu\text{m}$
Cladding diameter	$125.0 \pm 1.0 \text{ } \mu\text{m}$
Core-cladding concentricity error	$\leq 1 \text{ } \mu\text{m}$
Cladding non-circularity	$\leq 1 \%$
Coating diameter	$242.0 \pm 7 \text{ } \mu\text{m}$
Coating-cladding concentricity error	$\leq 10 \text{ } \mu\text{m}$

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS OM3
Temperature cycling	-60°C to $+85^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
Water immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
High temperature aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$





WAVEOPTICS

OM4

Optical Fiber Specifications

**TECHNICAL
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WAVEOPTICS FIBER (P) OM4

Optical fiber specifications before cabling

CHARACTERISTICS		WAVEOPTICS OM4
Fiber Code		P
Attenuation	850 nm	≤ 2.3 dB/km
	1300 nm	≤ 0.7 dB/km
	1383 nm	≤ 2.0 dB/km
Attenuation Discontinuities	1300 nm	≤ 0.05 dB
Bandwidth (Overfilled Launch)	850 nm	≥ 3500 MHz*km
	1300 nm	≥ 500 MHz*km
Laser EMB	850 nm	≥ 4700 MHz*km
Numerical aperture		0.2 ± 0.015
Group refractive index	850 nm	1.483
	1300 nm	1.478
Zero dispersion wavelength		$1295 \leq \lambda_0 \leq 1340$ nm
Transmission link distance for 10Gb/s (LX4)	850 nm	400 m
	1300 nm	300 m
Macrobend attenuation 100 turns @ 37.5 mm radius	850 nm	≤ 0.05 dB
	1300 nm	≤ 0.15 dB
Macrobend attenuation 2 turns @ 15 mm radius	850 nm	≤ 0.1 dB
	1300 nm	≤ 0.3 dB
Macrobend attenuation 2 turns @ 7.5 mm radius	850 nm	≤ 0.2 dB
	1300 nm	≤ 0.5 dB



Physical Characteristics

CHARACTERISTICS	WAVEOPTICS OM4
Core diameter	$50 \pm 2.5 \text{ } \mu\text{m}$
Cladding diameter	$125.0 \pm 1.0 \text{ } \mu\text{m}$
Core-cladding concentricity error	$\leq 1 \text{ } \mu\text{m}$
Cladding non-circularity	$\leq 1 \%$
Coating diameter	$242.0 \pm 7 \text{ } \mu\text{m}$
Coating-cladding concentricity error	$\leq 10 \text{ } \mu\text{m}$

Environmental Characteristics

CHARACTERISTICS	CONDITIONS	WAVEOPTICS OM4
Temperature cycling	-60°C to $+85^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
Water immersion	$23^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$
High temperature aging	$85^{\circ}\text{C} \pm 2^{\circ}\text{C}$	$\leq 0.1 \text{ dB/km}$

