Optical Fiber Specifications

Single Mode

						Reduced	TeraFlex® Bend Resistant			
					Single Mode Fiber Types	Water Peak	G.657.A1	G.657.A2	G.657.B3	NZDS
					9-Digit Part Number Designator	3	K	J	L	8
					16-Digit Part Number Designator	10	13	14	15	19
Cable Performance	Parameter	Test Method/Standard	Units	Wavelength	Cable Type					
	Maximum Attenuation	ANSI/TIA-455-78-B-2002	dB/km	1310 nm	Tight Buffer	0.70	0.70	0.70	0.70	-
					Loose Tube	0.35	0.35	0.35	0.35	-
				1383 nm	Tight Buffer	0.70	0.70	0.70	0.70	-
					Loose Tube	0.35	0.35	0.35	0.35	-
				1490 nm	Tight Buffer	0.70	0.70	0.70	0.70	0.70
					Loose Tube	0.25	0.25	0.25	0.25	0.30
				1550 nm	Tight Buffer	0.70	0.70	0.70	0.70	0.70
					Loose Tube	0.25	0.25	0.25	0.25	0.30
				1625 nm	Tight Buffer	0.70	0.70	0.70	0.70	0.70
					Loose Tube	0.25	0.25	0.25	0.25	0.25
	Typical Attenuation	ANSI/TIA-455-78-B-2002	dB/km	1310 nm	Tight Buffer	0.41	0.41	0.41	0.41	-
					Loose Tube	0.34	0.34	0.34	0.34	-
				1383 nm	Tight Buffer	0.41	0.41	0.41	0.41	-
					Loose Tube	0.33	0.31	0.31	0.31	-
				1550 nm	Tight Buffer	0.41	0.41	0.41	0.41	0.41
					Loose Tube	0.19	0.19	0.19	0.19	0.25

Fiber Performance	Parameter	Test Method/Standard	Units	Conditions					
	Nominal Group Refractive Index	-	-	1310 nm	1.467	1.467	1.467	1.467	1.467
				1550 nm	1.468	1.468	1.468	1.468	1.468
	Maximum Individual Fiber Polarization Mode Dispersion	ANSI/TIA/EIA-455-113-96	ps/√km	-	0.2	0.2	0.2	0.2	0.2
	Cable Cutoff Wavelength	ANSI/TIA-455-80-C-2003	nm	-	1260	1260	1260	1260	1260
	Zero Chromatic Dispersion Wavelength	ANSI/TIA-455-175-B-2003	nm	-	1300–1324	1300–1324	1304–1324	1304–1324	N/A
	Typical Chromatic Dispersion Slope	ANSI/TIA-455-175-B-2003	ps/nm2-km	-	0.087	0.087	0.087	0.087	0.047
	Proof Strength	ANSI/TIA/EIA-455-31-C-2005	kpsi	On-line	100	100	100	100	100
			GPa	On-line	0.69	0.69	0.69	0.69	0.69
	Mode Field Diameter	ANSI/TIA-455-191-B-2003	µm	1310 nm	8.8–9.6	8.8–9.6	8.2–9.2	8.2–9.2	N/A
				1550 nm	9.9–10.9	9.9–10.9	9.1–10.1	9.1–10.1	7.8–10.0
	Maximum Macrobend Attenuation Increase	ANSI/TIA-455-62-B-2003	dB	1310 nm 100 turns on 50 mm mandrel	0.05	0.01	0.01	0.01	0.05
				1550 nm 1 turn on 15 mm mandrel	-	-	0.03	0.01	-
				1550 nm 1 turn on 10 mm mandrel	-	-	0.20	0.03	-
	Cladding Diameter	ANSI/TIA-455-176-A-2003	µm	-	125.0 ± 0.9	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7	125.0 ± 0.7
	Coating Diameter	ANSI/TIA-455-176-A-2003	micron	-	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10
	Maximum Core/Clad Concentricity Error	ANSI/TIA-455-176-A-2003	µm	-	0.5	0.5	0.5	0.5	0.5
	Max. Cladding Non-Circularity	ANSI/TIA-455-176-A-2003	%	-	1	1	0.7	0.7	0.7
	Maximum Coating/Cladding Concentricity Error	ANSI/TIA-455-176-A-2003	µm	-	12	12	12	12	12

Guaranteed Supportable Ethernet Distances	Data Rate	Protocol	Units	Wavelength	Maximum Transmission Distances				
	10 Gbps	10GBASE-LR	km	1310 nm	25	25	25	25	25
		10GBASE-ER	km	1550 nm	40	40	40	40	40
		10GBASE-ZR	km	1550 nm	80	80	80	80	80
	40 Gbps	40GBASE-LR4	km	1550 nm	10	10	10	10	10
	100 Gbps	100GBASE-LR4	km	1550 nm	10	10	10	10	10
		100GBASE-ER4	km	1550 nm	40	40	40	40	40

Fiber Channel Link Distances	Throughput Per Direction	Speed Name	Units	Wavelength	Maximum Link Distance				
	800 MBps	8GFC	meters	1310 nm	10,000	10,000	10,000	10,000	10,000
	1200 MBps	10GFC	meters	1310 nm	10,000	10,000	10,000	10,000	10,000
	1600 MBps	16GFC	meters	1310 nm	10,000	10,000	10,000	10,000	10,000

Standards	ISO/IEC	Tight Buffer	11801: OS1	11801: OS1	11801: OS1	11801: OS1	-
		Loose Tube	24702: OS2	24702: OS2	24702: OS2	24702: OS2	-
	Telcordia		GR-20-CORE				
	ITU-T		G.652.D	G.652.D G.657.A1	G.652.D G.657.A2	G.652.D G.657.B3	G.655.C, E G.656
	TIA-492		CAAB	CAAB	CAAB	CAAB	N/A
	IEC 60793-2-50 Type		B1.3	B1.3	B1.3	B1.3	-
	ANSI/ICEA	Tight Buffer	S-83-596				
		Loose Tube	S-87-640				
	RUS	Loose Tube	PE-90				

Optical Fiber Specifications

MultiMode

								TeraGain		TeraGain Laser Optimized 50/125			TeraFlex® Bend Resistant Laser Optimized 50/125		
					Multimode Fiber Types			TeraGain® 62.5/125	TeraGain 50/125	10G/150	10G/300	10G/550	10G/150	10G/300	10G/550
					9-Digit Part Number Designator			6	5	A	B	F	M	N	P
					16-Digit Part Number Designator			23	21	27	29	31	28	30	32
Cable Performance	Parameter	Test Method/Standard	Units	Wavelength	Cable Type										
	Maximum Attenuation	TIA/EIA-455-78	dB/km	850 nm	Tight Buffer/ Loose Tube			3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
		TIA/EIA-455-78	dB/km	1300 nm	Tight Buffer/ Loose Tube			1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Typical Attenuation	TIA/EIA-455-78	dB/km	850 nm	Tight Buffer			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
					Loose Tube			2.7	2.2	2.2	2.2	2.2	2.2	2.2	2.2
		TIA/EIA-455-78	dB/km	1300 nm	Tight Buffer			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
					Loose Tube			0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Fiber Performance	Parameter	Test Method/Standard	Units	Conditions											
	Numerical Aperture	ANSI/TIA-455-177-B-2003	-	-				0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
	Nominal Group Refractive Index	OTDR	-	850 nm				1.496	1.483	1.483	1.483	1.483	1.483	1.483	1.483
			-	1300 nm				1.491	1.479	1.479	1.479	1.479	1.479	1.479	1.479
	Macrobend Attenuation Change	ANSI/TIA-455-62-B-2003	dB	100 turns on 75 mm Mandrel	850 nm			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
					1300 nm			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
				2 turns on 30 mm Mandrel	850 nm			-	-	-	-	-	≤ 0.1	≤ 0.1	≤ 0.1
					1300 nm			-	-	-	-	-	≤ 0.3	≤ 0.3	≤ 0.3
				2 turns on 15 mm Mandrel	850 nm			-	-	-	-	-	≤ 0.2	≤ 0.2	≤ 0.2
					1300 nm			-	-	-	-	-	≤ 0.5	≤ 0.5	≤ 0.5
	Proof Strength	TIA/EIA-455-31	kpsi	On-line				100	100	100	100	100	100	100	100
			GPa	On-line				0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
	Cladding Diameter	ANSI/TIA-455-176-A-2003	micron	-				125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2	125 ± 2
	Coating Diameter	ANSI/TIA-455-176-A-2003	micron	-				250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10	250 ± 10
	Core/Clad Concentricity Error	ANSI/TIA-455-176-A-2003	microns	-				1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Cladding Non-Circularity	ANSI/TIA-455-176-A-2003	%	-				1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
	Coating/Clad Concentricity Error	ANSI/TIA-455-176-A-2003	microns	-				12 µm	12 µm	12 µm	12 µm	12 µm	12 µm	12 µm	12 µm
	Minimum Bandwidth: Overfilled Launch	TIA/EIA-455-124-2000	MHz-km	850 nm				220	500	700	1,500	3,500	700	1,500	3,500
				1300 nm				600	500	500	500	500	500	500	500
	Minimum Bandwidth: Laser Effective Modal Bandwidth	TIA-455-220-A	MHz-km	850 nm				N/A	N/A	950	2,000	4,700	950	2,000	4,700
				1300 nm				N/A	N/A	500	500	500	500	500	500
Guaranteed Supportable Ethernet Distances	Data Rate	Protocol	Units	Wavelength				Maximum Transmission Distances							
	10 Mbps	10BASE-FL	meters	850 nm				1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
	100 Mbps	100BASE-SX	meters	850 nm				500	750	1,000	1,000	1,000	1,000	1,000	1,000
		100BASE-FX	meters	1300 nm				2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
	1 Gbps	1000BASE-SX	meters	850 nm				300	750	1,000	1,000	1,040	1,000	1,000	1,040
		1000BASE-LX	meters	1300 nm				600*	600*	600	600	600	600	600	600
	10 Gbps	10GBASE-SR	meters	850 nm				35	82	150	300	550	150	300	550
		10GBASE-LRM	meters	1300 nm				300	300	300	300	300	300	300	300
	40 Gbps	40GBASE-SR4	meters	850 nm				-	-	-	100	125	-	100	125
	100 Gbps	100GBASE-SR10	meters	850 nm				-	-	-	100	125	-	100	125

*Mode conditioning patch cord required

Fiber Channel Link Distances	Throughput Per Direction	Speed Name	Units	Wavelength				Maximum Link Distance							
	100 MBps	1GFC	meters	850 nm				300	500	500	860	*	500	860	*
	200 MBps	2GFC	meters	850 nm				150	300	300	500	*	300	500	*
	400 MBps	4GFC	meters	850 nm				50	150	150	380	400	150	380	400
	800 MBps	8GFC	meters	850 nm				21	50	50	150	190	50	150	190
	1200 MBps	10GFC	meters	850 nm				33	82	82	300	*	82	300	*
	1600 MBps	16GFC	meters	850 nm				15	35	35	100	125	35	100	125

*The link distance on OM4 fiber has not been defined for these speeds.

Standards	ISO/IEC 11801		OM1	OM2	OM2	OM3	OM4	OM2	OM3	OM4
	Telcordia		GR-20-CORE							
	ITU-T		N/A	G.651.1						
	TIA-492		AAAA-A	AAAB	AAAB	AAAC-A	AAAD	AAAB-A	AAAC-B	AAAD
	IEC 60793-2-10 Type		A1b	A1a.1	A1a.1	A1a.2	A1a.3	A1a.1	A1a.2	A1a.3
	ANSI/ICEA	Tight Buffer	S-83-596							
		Loose Tube	S-87-640							