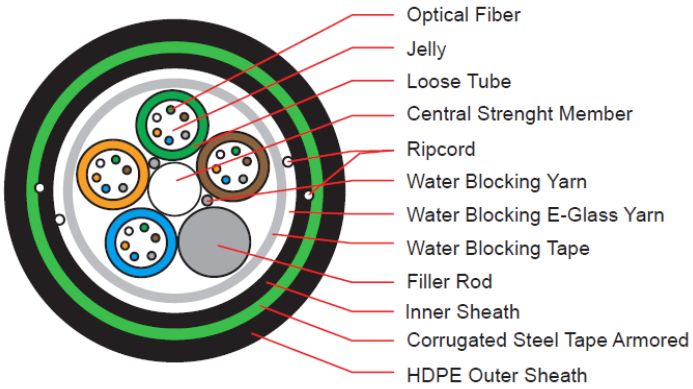

ARSS, OUTDOOR, MULTI-TUBE, ARMORED, DOUBLE JACKET, FIBER OPTIC CABLE

1. APPLICATION

This specification covers the construction and properties of ARSS (Anti-Rodent Self-Support), Outdoor/Multi-tube, Double Jacket, fiber optic cable for aerial, direct buried and duct installation. LINK fiber optic cable supports application such as 40/100Gbps Ethernet, IEEE802.3ae,10G Ethernet, IEEE802.3z, Gigabit Ethernet, Fast Ethernet, Ethernet,100BASE-F, 52/155/622Mbps and 1.2Gbps ATM, FDDI, Fiber channel and others.

LINK ARSS, Outdoor/Multi-tube, Double Jacket, fiber optic cable. Singlemode color coded fibers are housed in multiple color coded plastic buffer tubes which are stranded around a dielectric central strength member. Dry water blocking tapes or yarns, wrapped around the core, provide protection against water ingress. These user friendly elements replace the sticky cable filling gel used in traditional loose tube cable designs. Water Blocking E-Glass yarns, which provide additional tensile strength, are applied over the cable core. Inner sheath Corrugated steel tape provide for anti-rodent. The cable outer sheath is high density polyethylene jacket. Contain 6 to 312 cores.

LINK fiber optic cable in accordance with

ANSI/TIA-568.3-D
ANSI/TIA-568-C.3
ANSI/ICEA 640
Telcordia (Bellcore) GR-20-CORE
ITU-T G.652D (Singlemode)
ITU-T G.651 (Multimode)
ISO/IEC 11801:2011
ISO/IEC 11801:2017
IEC 60793, IEC 60794-1-2
EN 50173-1
TIS 2166-2548
RoHS Compliant

2. ORDER INFORMATION

ARSS, OUTDOOR/MULTI-TUBE, ARMORED, DOUBLE JACKET, FIBER OPTIC CABLE

Descriptions	OS2, SM 9/125 µm	OM2, MM 50/125 µm	OM3, MM 50/125 µm	OM4, MM 50/125 µm	OM5, MM 50/125 µm
6 Core	UFC9706MAD	UFC5706MAD	UFC4706MAD	UFC3706MAD	UFC2706MAD
12 Core	UFC9712MAD	UFC5712MAD	UFC4712MAD	UFC3712MAD	UFC2712MAD
24 Core	UFC9724MAD	UFC5724MAD	UFC4724MAD	UFC3724MAD	UFC2724MAD
36 Core	UFC9736MAD	UFC5736MAD	UFC4736MAD	UFC3736MAD	UFC2736MAD
48 Core	UFC9748MAD	UFC5748MAD	UFC4748MAD	UFC3748MAD	UFC2748MAD
60 Core	UFC9760MAD	UFC5760MAD	UFC4760MAD	UFC3760MAD	UFC2760MAD
72 Core	UFC9772MAD	UFC5772MAD	UFC4772MAD	UFC3772MAD	UFC2772MAD
96 Core	UFC9796MAD	UFC5796MAD	UFC4796MAD	UFC3796MAD	UFC2796MAD
120 Core	UFC97120MAD	UFC57120MAD	UFC47120MAD	UFC37120MAD	UFC27120MAD
144 Core	UFC97144MAD	UFC57144MAD	UFC47144MAD	UFC37144MAD	UFC27144MAD

3. OPTICAL FIBER

Items		Specifications
Fiber Type		9/125 µm (OS2)
Max. / Typ. Attenuation	1310 nm	≤ 0.35 / ≤ 0.33 dB/km
	1383 nm	≤ 0.35 / ≤ 0.31 dB/km
	1550 nm	≤ 0.21 / ≤ 0.19 dB/km
	1625 nm	≤ 0.23 / ≤ 0.20 dB/km
Core	Mode Field Diameter	9.2 ± 0.4 µm @ 1310 nm 10.4 ± 0.5 µm @ 1550 nm
Cladding Diameter		125 ± 0.7µm
Coating Diameter, Primary		242 ± 5 µm
Coating Diameter, Secondary		250 ± 5 µm
Cladding Non-circularity		≤ 0.7 %
Core/Cladding Concentricity error		≤ 0.5 µm
Coating/Cladding Concentricity error		≤ 12 µm
Attenuation (Homogeneity)		Max 0.1 dB/km
Zero Dispersion Wavelength		1300 ~ 1324 nm
Zero Dispersion Slope		≤ 0.092 ps/(nm^2.km)
Cut-off Wavelength	λ o (Fiber)	1150 ~ 1330 nm
	λ ∞ (Cable)	≤1260nm
Proof Test Stress		100 Kpsi
Chromatic Dispersion	λ ; 1285~1340 nm	≤ 3.5 ps/nm.km
	λ = 1550 nm	≤ 18 ps/nm.km
	λ = 1625 nm	≤ 22 ps/nm.km
Polarization mode dispersion (PMD)		≤ 0.20 ps/√km
Fiber Curl		≥ 4M
Numerical Aperture		0.130 ± 0.010
Group refractive index	1310 nm	1.4676
	1550 nm	1.4682

Table 1 The Optical, Geometrical Performance of the Singlemode Fiber (The specification conforms to the requirement of ISO/IEC11801, ANSI/TIA-568-C.3, IEC 60793-2B1.3, ITU-T G.652D)

Items		Specifications			
Fiber Type		50/125 µm (OM2)	50/125 µm (OM3)	50/125 µm (OM4)	50/125 µm (OM5)
Max./ Typ. Attenuation (dB/km)	850 nm	≤ 2.7 / ≤ 2.5	≤ 2.7 / ≤ 2.3	≤ 2.7 / ≤ 2.3	≤ 2.7 / ≤ 2.3
	1300 nm	≤ 0.8 / ≤ 0.7	≤ 0.8 / ≤ 0.6	≤ 0.8 / ≤ 0.6	≤ 0.8 / ≤ 0.6
	953 nm	N.A	N.A	N.A	≤ 2.3 / ≤ 2.0
Bandwidth (MHz/km)	850 nm	≥ 500	≥ 1500	≥ 3500	≥ 3500
	1300 nm	≥ 500	≥ 500	≥ 500	≥ 500
	953 nm	N.A	N.A	N.A	≥ 1850
850nm Laser Bandwidth (MHz/km)		N.A	≥ 2000	≥ 4700	≥ 4700
953nm Laser Bandwidth (MHz/km)		N.A	N.A	N.A	≥ 2470
Core Diameter (µm)		50.0 ± 2.5	50.0 ± 2.5	50.0 ± 2.5	50.0 ± 2.5
Cladding Diameter (µm)		125 ± 1	125 ± 1	125 ± 1	125 ± 1
Core Non-circularity (%)		≤ 5	≤ 5	≤ 5	≤ 5
Cladding Non-circularity (%)		≤ 1.0	≤ 1.0	≤ 1.0	≤ 1.0
Core/Cladding Concentricity error (µm)		≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
Coating Diameter, Primary (µm)		242 ± 5	242 ± 5	242 ± 5	242 ± 5
Coating Diameter, Secondary (µm)		250 ± 5	250 ± 5	250 ± 5	250 ± 5
Coating Non-Circularity (%)		≤5	≤5	≤5	≤5
Coating/Cladding Concentricity error (µm)		≤12	≤12	≤12	≤12
Attenuation (Homogeneity)		Max 0.1 dB/km	Max 0.1 dB/km	Max 0.1 dB/km	Max 0.1 dB/km
Proof Test Stress (kpsi)		100	100	100	100
Bending Loss @ 850 & 1300 nm (100 turns, D=75 mm)		≤ 0.5 dB	≤ 0.5 dB	≤ 0.5 dB	≤ 0.5 dB
Zero-Dispersion Wavelength		1295~1315nm	1295~1315nm	1295~1315nm	1295~1315nm
Zero-Dispersion Slope (ps/(nm^2.km))		≤ 0.101	≤ 0.101	≤ 0.101	≤ 0.101
Numerical Aperture		0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015	0.200 ± 0.015
Group refractive index	850 nm	1.482	1.482	1.482	1.482
	1300 nm	1.477	1.477	1.477	1.477

Table 2 The optical, Geometrical Performance of the Multimode Fiber (The specification conforms to the requirement of ISO/IEC11801, ANSI/TIA-568-C.3, IEC 60793-2A1a, IEC 60793-2A1b, ITU -T G.651)

4. CABLE CONSTRUCTION

The construction of the cable shall be in accordance with Table 3 below.

Item		Description			
Number of fibers		6-24	36-60	72	96
Loose Tube	Material	PBT (Polybutylene Terephthalate) with color coding			
	Filling Compound	Thixotropic Jelly Compound			
	Fiber per Tube	6	12		
	Number	1-4	3-5	6	8
Filler Rod	Material	Plastic rod, natural color			
	Number	4-1	2-0	0	
Stranding	Method	Reverse oscillating lay (ROL) technique (SZ Direction)			
Central Strength Member	Material	FRP (Fiberglass Reinforce with Plastic)			
	Color	Natural			
Water Blocking Yarn	Material	Suitable Water Swellable Materials (Dry-Core Technology)			
Binder & Wrapping	Material	Polyester yarns			
Water Blocking Tape	Thickness	0.3 ± 0.05 mm.			
Ripcord 1	Material	Plastic thread			
	Number	2			
Additional Strength Member	Material	Water blocking E-glass yarn (aramid yarn is available on request)			
Inner Sheath	Material	Black MDPE			
	Thickness (Approx.)	1.0 mm.			
Armored	Material	Corrugated chrome steel tape coated with polymer			
	Thickness	Steel & Polymer coating : 0.25 mm.			
Ripcord 2	Material	Plastic thread			
	Number	2			
Outer Sheath	Material	UV-Proof, Black HDPE (with color strip is available on request)			
	Thickness (Approx.)	1.6 mm.			
Cable Diameter (Approx.)		12.5 ± 1 mm.	12.9 ± 1 mm.	13.0 ± 1 mm.	14.6 ± 1 mm.
Cable Weight (Approx.)		135 ± 10kg./km.	145 ± 10kg./km.	160 ± 10kg./km.	185 ± 10kg./km.

Table 3 Construction of ARSS, Outdoor/Multi-tube, Armored, Double Jacket, Fiber optic cable.

5. TEMPERATURE RANGE

For the cables covered by this specification, the following temperature ranges apply.

- Operation Temperature : -40°C to +70°C
- Installation Temperature : -40°C to +70°C
- Storage/Shipping Temperature : -40°C to +75°C

6. MECHANICAL SPECIFICATION

Item		Specification
Maximum Span Length	Sag 0.5%	40 m.
	Sag 1.0%	80 m.
Maximum Wind Velocity		126 km./hr.
Max. Tensile load	Installation	3,000 N. for 6-96 Cores
	Operation	1,500 N. for 6-96 Cores
Maximum Crush resistance		4,400 N./10 cm.
Minimum bending Radius	Installation	20 x Diameter of Cable
	Operation	10 x Diameter of Cable

Table 4 Mechanical Specification of the cable.

7. FIBER AND LOOSE TUBE IDENTIFICATION

The color code of the loose tubes and the individual fibers within each loose tube shall be in accordance with Table 5 below TIA/EIA-598-C (Rev. TIA/EIA-598-A) and EIA-359-A Color Code for Fiber and Loose tube Identification.

No.	Fiber color	Loose Tube color
1	Blue	Blue
2	Orange	Orange
3	Green	Green
4	Brown	Brown
5	Slate	Slate
6	White	White
7	Red	Red
8	Black	Black
9	Yellow	Yellow
10	Violet	Violet
11	Rose	Rose
12	Aqua	Aqua

Table 5 TIA/EIA-598-C Color Code for Fiber and Loose tube Identification.

8. MECHANICAL PERFORMANCE TEST

- Tensile loading Test — TIA/EIA-455-33A and IEC 60794-1-2-E1A
- Compression Test — TIA/EIA-455-41A and IEC 60794-1-2-E3
- Repeated Bending Test — TIA/EIA-455-104A and IEC 60794-1-2-E6
- Impact Test — TIA/EIA-455-25B and IEC 60794-1-2-E4
- Cable Bending Test — IEC 60794-1-2-E11B
- Cable Twist or Torsion Test — TIA/EIA-455-85A and IEC 60794-1-2-E7
- Temperature Cycling Test — TIA/EIA-455-3A and IEC 60794-1-2-F1
- Water Penetration Test — TIA/EIA-455-82B and IEC 60794-1-2-F5