SHAHID GHANDI COMMUNICATION CABLE CO.

CODE: 0213-001

TECHNICAL SPECIFICTION FOR
SINGLE MODE
OPTICAL FIBER CABLE
(CENTRAL TUBE)

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SPECIFICATION FOR

OPTICAL FIBER CABLE

1 - GENERAL

This specification covers in detail the optical, physical and mechanical characteristics of central tube optical fiber cable.

2 - OPRICAL FIBER

2-1 – Optical Characteristics

The fibers may be standard single mode (ITU-G652) and have the following table (1).

TABLE (1)

PARAMETERS (Maximum Individual)		UNIT	VALUE
Fiber Attenuation	1310nm	dB/km	0.35
	1550nm	dB/km	0.25
Temperature Variation Attenuation		dB/km	=0.05
Point Discontinuities	1310/1550nm	dB	=0.10
Water Peak Attenuation	1383±3	dB/km	See note
Attenuation Change vs. Wavelength	1285-1310	dB/km	=0.10
	1525-1575	dB/km	=0.05
Attenuation Change vs. Bending	100wraps/50mmdia	dB	=0.5
	1wrap/32mmdia	dB	=0.05
Zero Dispersion Wavelength		nm	1300-1324
Maximum Dispersion	1310nm	Ps/nm.Km	=3.2
	1550nm	Ps/nm.Km	=18.0
Zero Dispersion Slope		Ps/nm2.Km	=0.092
Nominal Mode Field Diameter	1310nm	µm	9.2±0.4
	1550nm	µm	10.4±0.8
Cable Fiber Cut-off Wavelength	(?cc)	nm	<1260
Polarization Mode Dispersion	1310nm	Ps/vKm	<0.2
	1550nm	Ps/vKm	<0.2

NOTE: For ITU-T G652 D the attenuation at 1383 will be < 0.31 dB/Km

2-2 - Fiber Dimensions
The fiber dimensions will be as following table (2).

TABLE (2)

PARAMETERS	UNIT	VALUE
Cladding diameter	µm	125±2
Core cladding concentricity error	µm	Max 1
Core non circularity error	%	Max 6
Cladding non circularity error	%	Max 2
Diameter of the coated fiber	µm	250±15
Coating concentricity error	µm	15
Coating non circularity error	%	10

2-3 – Fiber identification
Fibers in each loose tube will be identified with the following table (3).

TABLE (3)

Fiber No.	Color	Fiber No.	Color
1	White	7	Brown
2	Red	8	Violet
3	Green	9	Orange
4	Blue	10	Pink
5	Yellow	11	Grey
6	Black	12	Natural

Note: For less than 12 core optical cables there should be first colors.

3 - CABLE CONSTRUCTION

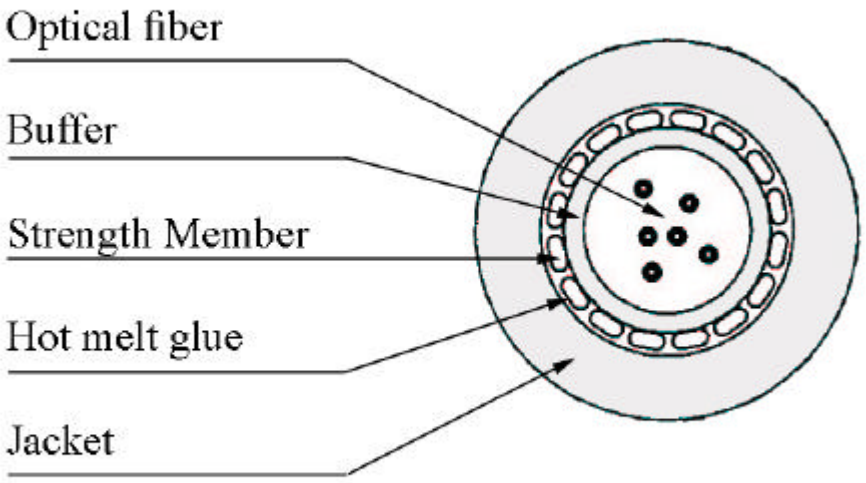
Cable constructions are in accordance with the following table (4) and FIG. (1)

TABLE (4)

Subject	Description
3-1- Optical fiber	Single mode fiber as ITU G.652. The fibers are color coded and properly operate at a wide range of temperature from -40 ºC up to +80 ºC.
3-2- Buffer	Central tube of PBT materials, contains up to 12 optical fibers, filled with thixo tropic jelly. The jelly is free from dirt, metallic particles and would be non toxic and present no any dermal hazards.
3-3- Strength member	A layer of Glass yarn will be applied over the buffer. Adhesive material may be applied over glass yarns.
3-4- Outer jacket	A black HDPE jacket in according to ASTM-D1248 will be applied on glass yarns. The nominal jacket thickness is 1.2mm.

FIG. (1)

The figure normally shows the general structure



4 - CABLE SIZES AND GENERAL DATA'S

4-1 - CABLE SIZES AND GENERAL DATA

Cables size and general data are in accordance with the following table (5).

TABLE (5)

PARAMETERS		2 Up to 12
Number of Fibers in tube		2 up to 12 Fiber
Tube Diameter(mm)		3.2
Pulling Tension (N)	Operation	700
	Installation	1600
Approx Overall diameter (mm)		6.5
Approx Weight (Kg/km)		35

4-2 – IDENTIFICATION MARKING

Each length of the cable shall be permanently identified as to the manufacturer, year of manufacture, number of tubes, fiber per tubes and cable type. The marking will be printed on the outer jacket.

NOTE: Other method as request

5 - Mechanical and Functional tests

Mechanical and functional tests are in accordance with the following table (6).

TABLE (6)

ITEM	CONDITIOND	REFERENCE
WATER PENETRATION	1 m Length / 1 m height / 1 hours no drop	FOTP-82
COMPRESSION	220 N / on 10 mm section of cable	EIA/TIA 455-41
FLEXING	25 mechanical flexing / heave diameter 20 times the cable diameter	EIA/TIA 455-104
IMPACT	660 g weight / 1 m height / In 2 at 3 locations along cable	EIA/TIA 455-25
TENSILE & BENDING	Pulling force 3000 N (As technical spec)	EIA/TIA 455-33
TWIST	2 m length / 10 cycles of mechanical twisting	EIA/TIA 455-85
LOW OR HIGH TEMPRATURE BEND	sheave diameter 20 times the cable diameter / 4 full turns / 4 hours / at temperatures -30°c & +60°c	EIA/TIA 455-37
KNOT	10 kg weight / in cross sectional diameter of the knot	EIA/TIA 455-87
TEMPRATURE CYCLING	2 hours from 0°c to -40°c / 8 hours in -40°c / 4 hours from -40°c to +85°c / 8 hours in +85°c / 2 hours from +85°c to 0°c / 5 cycles	IEC 794-1-F1

Note: The change in attenuation will not exceed 0.05 dB at 1550 nm.