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Kenya Power

ADSS FIBER OPTIC CABLE & ACCESSORIES - SPECIFICATION

A Document of the Kenya Power & Lighting Co. Ltd
May 2020



TITLE:

**ADSS FIBER OPTIC
CABLE & ACCESSORIES -
SPECIFICATION**

Doc. No.

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2020-05-05

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PART B: DETAILED TECHNICAL SPECIFICATIONS (DTS)

LOT 3: ADSS FIBER OPTIC CABLE AND ACCESSORIES

1 TECHNICAL SPECIFICATIONS FOR ADSS FIBER OPTIC CABLE AND ACCESSORIES

The ADSS fiber optic cable and accessories in the schedule of requirements shall conform to the minimum requirements below;

1.1 FIBER OPTIC CABLE

1.1.1 ADSS Fiber Optic cable 48 core single mode (9/125)

The ADSS optical cable shall be of non- metallic type designed for installation on power lines of 220kV, 132kV, 66Kv, 33Kv and 11Kv lines with minimum span lengths of 100 meters. The Bidder shall offer ADSS containing 48 Nos. of Single Mode (SM) optical fibers in conformity with ITU-T recommendations G-652D. The cable shall be designed to withstand all prevailing environmental conditions including the effects of high electric and magnetic fields produced by the proximity of live power conductors and meet the requirements of International Standard IEEE 1222.

1.1.1.1 Mechanical & Environmental specifications for 48 core SM (9/125) ADSS fiber

The cable shall be constructed from materials which have been technically proven and able to withstand the electrical and environmental conditions.

Table 1 below gives the desired mechanical and environmental specifications for the ADSS Fiber Optic Cable for minimum performance characteristics.

Table 1 Mechanical and environmental Specifications for 48 Core SM (9/125) ADSS Fiber Optic Cable

ITEM	DESCRIPTION	MINIMUM REQUIREMENTS	TENDERER'S OFFER
1.	Fiber counts	48	
2.	Minimum Operating Load	6000 N	
3.	Minimum Bending Radius Installation Long Term	20xO.D. 10xO.D.	

Prepared by:

Authorized by: Head of Section, PSC

Signed:

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ITEM	DESCRIPTION	MINIMUM REQUIREMENTS	TENDERER'S OFFER
4.	Minimum. Compressive Loading	4000 N / 10 cm	
5.	Impact Resistance	4.4 J, 3 x 2 times	
6.	Twist (Torsion)	10 turns of 180° on 125xO.D.sample, both ways.	
7.	Storage Temperature Range	-50° C to +50° C	
8.	Operating Temperature Range	-40° C to +50° C	
9.	Core Fluid Penetration	1 m sample, 1 m water head for 24 Hrs	
10.	Span (Distance Between Poles)	Up to 150M	
11.	Warranty	15 years	
12.	UV Resistance	Excellent weathering and UV resistance	
13.	Outer Cable Markings	Property of Kenya Power & Lighting Company	
14.	Packing	Rolls of 4000M	
15.	Length marking	Every meter	
16.	Color of Cable	Black	
17.	Performance	Allowed attenuation per Km for the 9/125 micron single mode fiber optic cable 1) 1310 0.4 db/km 2) 1550 0.3 db/km	
18.	Fusion splice loss	Maximum allowed loss 0.1db	
19.	Wind Speed	Minimum 25m/s	
20.	Jacket	PE for ADSS Cable	

1.1.2 4-way Splice Box - Plastic

The 4-way splice box shall be used for establishing joints in the ADSS Fiber Optic Cable. It shall be of the vertical type and shall provide for a minimum of 96 fiber terminations. It shall be of plastic material suitable for use in aerial, direct buried and/or underground cable joints. It shall provide a minimum of 4 cable out ports. Table 2 below gives a summary of the minimum requirements for the 4-way plastic splice box while Figure 1 shows a sample of the vertical plastic splice box complete with pole affixture.

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Table 2 Minimum requirements for 4-way plastic splice box

ITEM	DESCRIPTION	MINIMUM REQUIREMENTS	TENDERER'S OFFER
1.	Construction	Dome	
2.	Minimum cable out ports	4	
3.	Minimum fiber capacity	96 cores	
4.	Size	400x140mm	
5.	Material	PC Plastic	
6.	Sealing structure	Waterproof screw mechanical seal	
7.	Working Temperature	-40°C to 65°C	
8.	Relative humidity	Up to 85%	
9.	Application	Aerial, Direct buried, underground	

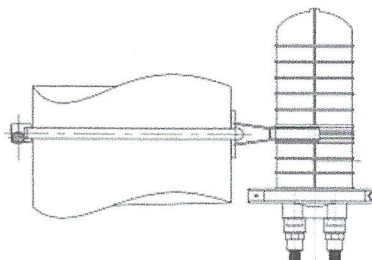
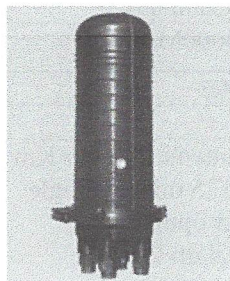


Figure 1 Plastic Splice/Joint Box

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1.1.3 High Density Polyethylene (HDPE) pipe

The HDPE pipe shall be used for protecting the ADSS Fiber optic cable in underground installation. The HDPE shall be constructed from materials which have been technically proven and in conformity with ISO 4427-1. The HDPE shall meet the minimum specifications in Table 3 below.

Table 3 Specifications for High Density Polyethylene (HDPE) Pipe

ITEM	DESCRIPTION	MINIMUM REQUIREMENTS	TENDERER'S OFFER
1.	Outside Diameter	2.54cm	
2.	Pressure	1.6Mpa	
3.	Color	Black	
4.	Material	PE, Polyethylene	

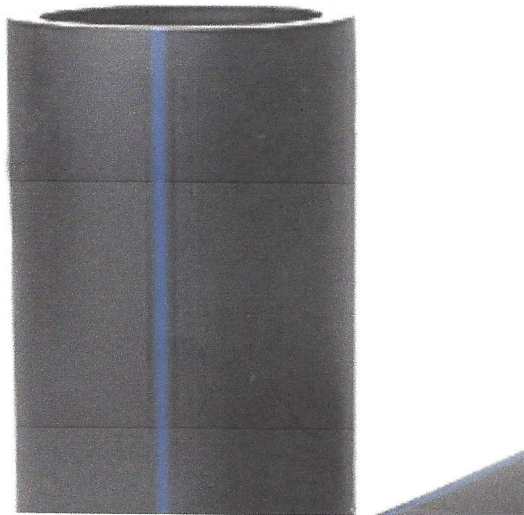


Figure 2 HDPE Pipe

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Signed:

Signed:

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