



GUJARAT ENERGY TRANSMISSION
CORPORATION LTD.

SARADAR PATEL VIDYUT BHAVAN,
RACE COURSE, BARODA – 390 007.

TECHNICAL SPECIFICATIONS

FOR

FIBER OPTIC CABLE

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Technical specifications of
Fiber Optic Cables with HDPE duct for Sub-station automation application

1.0 General Requirements:

The FO cables shall offer high network reliability and craft productivity during installation and splicing. The cables shall be designed to protect the Fibers from environmental hazards and cable handling during installation.

The cables shall have high flexibility and low weight. The cables shall have identification marking at regular intervals of 1 meter. Marking shall be of permanent nature. The accuracy of the sequential marking shall be within +0.5%, -0%.

2.0 Specifications of Optical characteristics:

The cables shall be made with high quality optical fibers suitable for operation at 850 nm and 1300 nm. The fibers shall be as per international standards ***ITU G 651***. The fibers shall have excellent geometrical properties to yield low splice loss. The fibers shall have dual acrylate coating and the color of the coating shall not change over the period. The fibers used in the cable shall confirm to the following specifications:

<u>Parameter</u>	<u>Unit</u>	<u>Specification</u>
1. Cable type		Multi-fiber
2. Fiber mode		Multi mode
3. Number of fibres	No.	6
<u>4. Core Diameter</u>	<u>μm</u>	<u>62.5</u>
<u>5. Cladding Diameter</u>	<u>μm</u>	<u>125</u>
6. Cable Diameter	mm	10
7. Operating temperature	° C	-40 to 85
8. HDPE duct		Suitable size

3.0 Attenuation:

The fibers in the cables shall have attenuation with in the following limits at both the operating wavelengths, 850 nm and 1300 nm.

- Every individual fiber in the cable shall have attenuation not more than 3.2 dB/km at 850 nm and 1.2 dB/km at 1300 nm.

4.0 Cable Construction:

4.1 Fiber Identification:

All the Fibers in the tube shall be colour coded as per the following order for identification purpose with UV curable inks:
Blue, Orange, Green, Brown, Slate, & White

4.2 Strength Members:

Cables shall have two FRP rod strength members to provide very good tensile strength. The strength members shall be dielectric since the cable is metal free. Strength members shall be located in the cable such that the tensile load shall be transferred to strength members when the cable is pulled.

4.3 Cable Core:

The cable core shall be ~~is~~ made waterproof by using water blocking powder/tape and filling compound.

4.4 Cable Sheath:

Polyethylene sheath shall be ~~is~~ provided to protect the cable core. Anti termite additives are added to polyethylene sheath for termite resistance.

Note:

Supply of HDPE ducts is in the scope of bidder.

The fiber optic cables shall ~~be~~ run in HDPE ducts of suitable size. Ducts shall be tied on cable trench at a regular distance of 2 meters. Separate HDPE ducts shall be used for separate FO Cables. HDPE ducts shall be of high grade quality.