220kV Communication Optical Cable Construction Plan



Overview

CN117092772A The application discloses an optical cable routing laying system and a planning method for a transformer substation, wherein the system compri.

Key Takeaways

A 220kV communication optical cable construction plan involves detailed route surveying, civil works, cable laying, jointing, termination, testing, and commissioning in compliance with technical standards.

Route Survey and Design

The first step is a detailed survey of the proposed cable route, including digging trial pits, soil resistivity and thermal resistivity testing every 100 meters, and preparation of route drawings in consultation with the owner's representative. Special attention is required at railway crossings, major roads, and areas with poor soil conditions, as these can affect insulation life and cable performance. The survey also includes preliminary alignment, tower positioning, and reference markers for accurate installation (Web results).

Civil Works and Ducting

The cable is typically laid in trenches or ducts, with a fully ducted solution recommended for protection and ease of maintenance. Trenches should accommodate trefoil formation for three-phase cables and include proper bedding and backfilling. In urban or sensitive areas, permissions for road cutting and coordination with local authorities are required.

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Concrete pillars or pegs are used to mark alignment and angles along the route (Web results).

Cable Supply and Installation

The cable used is generally 220kV, XLPE insulated, single-core, stranded copper conductor with HDPE outer sheath. Installation includes handling, laying, and clamping on racks or trays. Cable accessories such as joints, terminations, and sealing ends must comply with IEC standards (IEC 62067, IEC 60840, IEC 61462) and be supplied and installed according to manufacturer instructions (Web results).

Jointing and Termination

Cable joints and terminations are critical for reliable operation. Oil-type or dry-type termination kits are used for outdoor connections. Proper installation ensures minimal electrical stress and long-term reliability.

Supervision by qualified personnel is recommended during these activities (Web results).

Testing and Commissioning

After installation, the cable undergoes site testing, including insulation resistance, continuity, and high-voltage tests. Thermal performance is evaluated based on soil resistivity data. Commissioning ensures the cable can carry the minimum continuous current (e.g., 1400A for 220kV 2500 sqmm cable) and meet power flow requirements (Web results).

Standards and Documentation

All activities should comply with IEEE 525-2007, IEC standards, and local transmission operator requirements. Detailed as-built records, route drawings, and test reports must be maintained for future maintenance and operational reliability (Web results).

Safety and Environmental Considerations

Safety measures include high-voltage precautions, proper grounding, and protective equipment. Environmental considerations involve minimizing disruption during trenching, avoiding sensitive areas, and ensuring proper restoration of the site after installation (Web results). This plan ensures a reliable, long-lasting 220kV communication optical cable system capable of supporting high-power transmission while adhering to technical and safety standards.

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Article Content

CN117092772A

The application discloses an optical cable routing laying system and a planning method for a transformer substation, wherein the system comprises the following steps: the optical cable...

110 kV, 220 kV and 400 kV Underground Cable Functional Specification

This section outlines the general requirements for the design and construction of 110 kV, 220 kV and 400 kV underground cable systems which will be connected to the 110 kV, 220 kV and 400 kV

220kV D/C Line Construction BOQ

The document is a bill of quantities (BOQ) for laying underground cables and related infrastructure from a 400kV substation to a 220kV substation. It includes items for laying double circuit 220kV XLPE

220 kV Cable Installation Methodology

The document describes the procedures for installing 220kV XLPE cables as part of the 2 x 96 MW Allain Duhangan Hydro Electric Project in India. It involves pulling the cables through a tunnel with an

220kV 2500 sqmm cable vol II -Technical Specification

Drum construction, cable placement on the drum and the installation of protective wrappings etc., shall be carefully coordinated to prevent damage to the cable during normal handling, ocean shipment and

220kV 1200 and 1000 sqmm cable vol II -Technical Specification

Route Survey and preparation of Cable route profile drawings with Latitude & Longitude details for every 50 Mtrs of cable route.

xuyzy044/Dingxing-220kV-Transmission-and-Substation-Project

This repository contains publicly available design documents for a 220kV transmission line project, primarily intended for educational and non-commercial use. The full design package for a

PROJECT : 400/220/132 kV GIS Sub station at Shamli (UP)

The cable termination work shall be carried out by an experienced cable jointer who shall have adequate experience in jointing and termination of 220kV or higher grade XLPE cables.

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EirGrid Functional Specification 220 kV Submarine Cables

The 220 kV cables and associated FO cables, where required, shall be manufactured, installed, and tested in accordance with standards and guidelines below. In any conflict between the standards

TECHNICAL SPECIFICATION

The cable provided shall meet both the construction and performance requirements such that the ground wire function, the optical fibre integrity and optical transmission characteristics are suitable for the

380 kV Underground Transmission Line Guide

This document describes the process for constructing an underground 380KV transmission line. Key steps include: 1) Planning the cable route and coordinating with local utilities. 2) Excavating trenches

110 kV, 220 kV and 400 kV Underground Cable Functional Specification

2.3 Cable Materials This section covers the design, manufacture, testing and delivery to Ireland of 110 kV, 220 kV and 400 kV (nominal voltage) underground cable materials, together with all accessories

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EirGrid Functional Specification 220 kV Submarine Cables

This specification is applicable to 220 kV AC submarine cable systems up to 200-meter water depths with fixed installation (static submarine cable system) including cables with integrated Fibre optic

FIBRE-OPTIC OVERHEAD GROUNDWIRE (OPGW)&FODP

Fibre optic cable shall be of Optical Ground wire (OPGW) type suitable for stringing over 400KV, 220KV & 132KV Transmission Towers. OPGW termination at switch yard shall be done through suitable

Handbook Optical fibres, cables and systems

The simultaneous availability of compact sources and of low-loss optical fibres led to a worldwide effort for developing optical fibre communication systems. The real research phase of fibre-optic

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Discussion on the Key Points of Optical Cable Line Construction ...

Based on the effective work practice, this paper summarizes the application precautions of optical cable line construction technology in optical fiber communication engineering, and also puts forward the

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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