

Inspection Report of 48-core Optical Cable

Article Overview

A comprehensive inspection report for a 48-core optical cable should include visual inspection, insertion loss measurements, OTDR testing, continuity verification, connector inspection, and standardized documentation.

Visual Inspection

Before any optical measurements, each fiber connector and endface should be visually inspected for contamination, scratches, cracks, or epoxy residue, as these defects can significantly affect optical performance. Automated or manual inspection probes can be used, following IEC standards, with magnification and focus adjustments to ensure accurate pass/fail results. Contaminated connectors should be cleaned using hybrid wet/dry methods or replaced if necessary to prevent increased insertion loss or reflectance over time .

Insertion Loss Testing

Insertion loss (IL) testing measures the total optical power loss across the fiber link. For a 48-core cable, each fiber should be tested individually using a light source and optical power meter or an LSPM setup. Reference methods such as the "One-Cord" or "Two-Cord" techniques are recommended, with results compared against project-specific loss budgets. This ensures that the cable meets design specifications and identifies any high-loss fibers .

OTDR Testing

Optical Time Domain Reflectometer (OTDR) testing is essential for long-distance or multi-core cables. OTDR traces detect events along the fiber, including splices, bends, breaks, and connector reflections. Each fiber should be tested from both ends to verify attenuation, locate faults, and confirm continuity. OTDR results provide precise meter-level mapping of the cable and are critical for troubleshooting and maintenance .

Continuity Verification

Continuity testing ensures that each fiber core is intact and correctly mapped between endpoints. This is particularly important for multi-core cables like a 48-core assembly, where misrouting or broken fibers can compromise network performance. Visual fault locators (VFLs) can be used for short-distance verification, but OTDR is preferred for longer links .

Connector Inspection

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All connectors, including MTP/MPO or LC modules, should be inspected and cleaned as needed. Connector loss limits should follow ISO 14763-3:2006 standards. Proper connector inspection prevents reflectance and insertion loss issues, which are critical in high-speed networks .

Documentation and Reporting

Test results should be recorded in a standardized format, including the test method, equipment used, and individual fiber measurements. OTDR traces, IL readings, and visual inspection results should be saved and transferred to a database or report software. Reports should be delivered to the client or commissioning agent within the project-specified timeframe, typically within five working days. Proper documentation allows trend analysis, fault identification, and verification of compliance with project specifications .

Summary

A complete inspection report for a 48-core optical cable should include:

- o Visual inspection of all connectors and endfaces
 - o Insertion loss measurements for each fiber
 - o OTDR testing to locate events and verify continuity
 - o Continuity verification for all cores
 - o Connector inspection and cleaning
 - o Standardized documentation with test results, methods, and OTDR traces
- Following these procedures ensures the cable meets performance requirements, supports reliable network operation, and provides a clear record for acceptance and maintenance purposes .

When a fiber optic system is successfully tested and determined to meet the customer's specific requirements and relevant industry

r cable can be laid by pulling/ blowing method. The one / two nos. 48 core optical fiber cables shall be lai
Cleaning of the pipes

The fibre cable shall contain 48 to 144 fibres and have an armoured loose tube construction. It shall be suitable for indoor

Insertion loss is tested by connecting a test source through a mating reference cable (launch reference cable) to the cable plant

Opti-Core™ Fibre Optic Indoor-Outdoor Armoured Cable 48 to 144-Fibres, EuroClass Cca and B2ca for

EMEA A T A S H E E T

Length of cable: generally is 2KM/Drum, can be customized. Cable printing: standard printing or can be customized. Other

Development of installation guides and procedures for the stringing, mechanical installation and splicing of the Fiber Optic cable,

This document provides instructions for performing pre-installation drum tests on OPGW cables to check for any potential damage

This inspection checklist outlines the steps to test buried fiber optic cables using an OTDR machine. The checklist includes 16 items

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Manufacturers of fiber optic products must demonstrate compliance to various safety and performance standards and requirements

1) The document is an inspection checklist for testing fiber optic cables using an OTDR machine as part of an EPC revitalization

IEC and TIA are developing new standards for MPO multi-fiber connector testing. FOA

The simultaneous availability of compact sources and of low-loss optical fibres led to a worldwide effort for developing optical fibre

Testing plays a key role in ensuring the fiber optic cables that make up the network are running efficiently. Controlling network loss is

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