

Calibration of Nordic Optical Communication Testers



Overview

Introduction This paper explains the recommended guidelines for testing an installed fiber optic system.

Key Takeaways

Calibration of Nordic optical communication testers ensures accurate, traceable, and standards-compliant measurements for fiber optic systems. Overview of Calibration Standards

Calibration of optical communication testers, such as OTDRs, optical power meters, and light sources, is governed by international standards including IEC 61315, IEC 61746, and ISO/IEC 17025. These standards define procedures for establishing calibration conditions, performing measurements, calculating uncertainties, and reporting results to ensure traceability to national standards (IEC 61315, IEC 61746) .

Key Calibration Procedures

- **Optical Power Meters:** Calibrated for absolute power and linearity across relevant wavelengths, typically from 350 to 1650 nm. Calibration ensures the meter accurately measures optical power with minimal uncertainty, often below 0.06 dB or 1.4% .



- OTDRs (Optical Time-Domain Reflectometers): Calibrated for distance, attenuation, and reflectance measurements. Procedures include verifying pulse width, resolution, dynamic range, and wavelength accuracy, following IEC 61746 and IEC 60793 standards .

- Light Sources (Laser and LED): Calibrated for output power, wavelength spectrum, and stability. This ensures consistent signal generation for testing fiber optic links .

Accredited Calibration Services

Several laboratories provide ISO/IEC 17025:2017 accredited calibration services, ensuring technical competence, independence, and traceability:

- Diamond SA: Offers in-house calibration for optical power meters, OTDRs, and light sources, with fast turnaround (2–3 days) and official certificates including measurement uncertainties .

- Kingfisher International: Provides traceable calibration for fiber optic testers, covering wavelengths 350–1650 nm, with uncertainties as low as 0.03 dB / 0.7% and full compliance with IEC 61315 and TIA-455-231 .

- Element Metech: Offers both laboratory and on-site calibration, flexible packages for single instruments or fleets, and digital tracking of calibration status .

- Tektronix: Multi-brand calibration services for optical power, wavelength accuracy, attenuation, return loss, and dispersion measurements, ensuring reliable performance across devices .

Additional Considerations

- Traceability and Uncertainty: Accredited labs provide certificates showing traceability to national standards and detailed uncertainty analysis.

- On-Site vs Laboratory Calibration: On-site calibration is available for instruments that are difficult to transport, while laboratory calibration offers the highest precision.

- Periodic Recalibration: Regular recalibration is recommended to maintain measurement accuracy and compliance with industry standards.

- Specialized Support: Many labs offer technical assistance, training, and consultation on measurement techniques and international standards. By following these procedures and using accredited services, Nordic optical communication testers can maintain high accuracy, reliability, and compliance with international fiber optic standards, ensuring optimal performance in telecommunications, research, and industrial applications.

Article Content

Simbol Test Systems Inc.

Being one of the very few specialized labs in optical fiber equipment, products are shipped to Simbol for calibration and repair from

Optical Calibration Laboratory | Kingfisher International

We provide specialist calibration services for: Optical power, loss, linearity, light source wavelength, fiber length, OTDR, ORL, fiber

Optical Calibration

ISO/IEC 17025 accredited optical test equipment calibration services near you with expert support, reliable accuracy, and 3-5 day

Calibrating Fiber Optic Instruments

In the end, an NBS-calibrated laboratory power meter and three test sources at the wavelengths most used in fiber optics (850, 1,300

How to calibrate your optical fiber power meter?

This is a testing setup developed by NIST to calibrate optical power meters using either collimated-beam or connectorized-fiber

Fiber Optic Test Equipment FAQ's

Bringing fiber optic or electronic test gear onto the job site must be a priority. Take the equipment out of the carrying cases

The FOA Reference For Fiber Optics

And always keep a set of spare reference cables in the field. Multimode Fiber Measurement Uncertainty All test methods have

Calibration - FiberOptics Services

Calibration ensures that the test results you are measuring are indeed accurate. From Power Meter/Light Sources, OTDR any test

Fiber Optic System Testing Tutorial

The passive fiber optic link may include the following components: 1) fiber optic cable, 2) fiber optic connectors, 3) fiber optic

Fiber Optics Calibration

ISO/IEC 17025 accredited fiber optic test equipment calibration near you with expert support, reliable accuracy, and 3-5 day

Guidelines Corning Recommended Fiber Optic Test

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Fiber Optics Calibration

Fiber Optics Calibration Our Process for Fiber Optics Testing & Calibration The need for testing the performance of fiber optic

Reference Guide to Fiber Optic Testing

Optical Communications The principle of an optical communications system is to transmit a signal through an optical fiber to a distant

The FOA Reference For Fiber Optics

Testing The Installed Fiber Optic Cable Plant - 5 Standard Ways Abstract: We often are asked questions about testing installed fiber

Optical Time-Domain Reflectrometer (OTDR) calibration

Applications The widespread adoption of optical fibre in telecommunications has produced a need to ensure the performance of

Fiber Optic Test Equipment Calibration Services | AssetRelay

Calibration Services for Fiber Optic Test Equipment AssetRelay, in collaboration with Simbol Test Systems Inc., provides

How to Calibrate Optical Sensors in Six Steps

Learn how to calibrate optical sensors for electrical engineering applications, using standard sources, methods, and procedures.

Fiber Optic Calibrations

We document each calibration with a certificate that contains both the initial and final status of your instrument. This enables you to

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

