

Optical Power Meter Testing Methods



Overview

We describe NIST measurement services for the calibration of optical fiber power meters. To augment the absolute power measurements NIST provides nonlinearity, spectral responsivity, and uniformity measurements. We explain the. We describe NIST measurement services for the calibration of optical fiber power meters. To augment the absolute power measurements NIST provides nonlinearity, spectral responsivity, and uniformity measurements. We explain the measurement standards, systems, methods, and uncertainties related to the NIST calibration services for optical fiber power. To meet the accuracy needs of the optoelectronics community, we have established a new laser power and energy measurement system (Figure 2), based on a commercial cryogenic radiometer designated the Laser Optimized Cryogenic Radiometer (LOCR). The system provides laser power measurements with a combined standard uncertainty of 0.02 % or less. In. NIST maintains a set of calibrated transfer power meters that are available for a Measurement Assurance Program (MAP) comparison of optical fiber power meters. These transfer standards are calibrated using the optical fiber power meter calibration system. First, NIST calibrates an appropriate transfer standard using the MAP participant's fiber cabl. This work was supported by the Calibration Coordination Group (CCG) of the Department of Defense and NIST's Calibration Services Development Fund. John Lehman of NIST provided useful insights on optical fiber power meters' spectral responsivity measurements and transfer standards. Paul Williams and Richard Mirin reviewed the paper; the authors th.

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