

Specifications

Standard Reference Instrument Series 6001

Laser Event Recorder Acceptance Test System

Description: The Laser Event Recorder Acceptance Test System is an instrument that measures the laser power from 532 nm and 1064 nm laser sources while providing a NIST traceable calibration of a Device Under Test (DUT) under 532 nm illumination. The system can be used to validate that a Laser Event Recorder (LER) is operating within the original equipment manufacturer's specifications.

A calibration report for the NIST calibrated laser power meter used in the system will be provided to provide NIST traceability of the LER acceptance test system.

Design, assembly and technical measurements leading to the production of this SRI were performed by J. Hadler, NIST Quantum Electronics and Photonics Division.

Support aspects involved in the issuance of this SRI were coordinated through the NIST Office of Reference Materials.

Specifications: NIST provides the Laser Event Recorder (LER) Acceptance Test System as a Standard Reference Instrumentation (SRI) for the validation of laser event recorders at laser wavelengths of 532 and 1064 nm. The LER is intended to detect, warn and record laser exposures that could affect human vision.

The Laser Event Recorder Acceptance Test System SRI provides a NIST traceable calibration of laser power at 532 nm laser wavelength. Documentation of NIST traceable is outlined in NIST Special Publication 250-75 "cw Laser Power and Energy Calibrations at NIST."

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Gaithersburg, MD 20899
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The Laser Event Recorder Acceptance Test System has the following specifications and features:¹

- A) Calculation spreadsheet as specified by manufacturer
- B) Optical breadboard for the following components
- C) CW DPSS laser operating at 532 nm
 - a. Emitting 532 nm at 5 mW
 - b. Shutter and control to regulate 532 nm exposure
 - c. Beam expander for 532 nm source
- D) Optical beam splitter for 532 nm source
- E) NIST calibrated photodiode power meter
 - a. Calibration certificate for photodiode power meter at 532 nm at specified power levels
- F) Pulsed laser operating at 1064 nm
 - a. Emitting 1064 nm at 200 mW average power
 - b. Beam expander for 1064 nm
- G) Kinematic fixture for LER under test

Delivery and Shipping: Unless otherwise agreed by the parties, shipping terms shall be [EXW \(Incoterms 2010\)](#). NIST will prepare packaging for shipment of the SRI. Shipping crate dimensions and weight will be included in each quote. Customers are responsible for arrangement of shipping pickup at NIST as well as all customs duties and import fees (HTC 9027.50.4050).

Installation: Installation is not included in the price of the product and the customer should contact the technical division for information regarding the initial setup, training and support of this SRI.

¹ Certain commercial equipment, instruments or materials are identified in this certificate to adequately specify the experimental procedure. Such identification does not imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the materials or equipment identified are necessarily the best available for the purpose.

Technical requirements at installation site: Customers must provide the following:

- A) Appropriate storage facility for the system's unopened boxes, which will be opened only by NIST employees.
- B) Appropriate facility to install and operate laser system
 - a. Appropriate Class 3B Laser Control Area
 - i. Signage and Hazard indicator lights satisfactory for customer safety office requirements.
 - b. Laser Safety Training for all staff that will operate the system
 - c. Appropriate Laser Protective Eyewear
- C) An optical bench dedicated to the operation of the LER acceptance test rig.
- D) A computer station for the system's computer and printer.
- E) A laser event recorder as a device under test to verification of the Laser Event Recorder Acceptance Test System.

Users of this SRI should ensure that the Specifications Certificate in their possession is current. This can be accomplished by contacting the Office of Reference Materials: telephone (301) 975-2200; fax (301) 948-3730; e-mail srminfo@nist.gov; or via the Internet at <http://www.nist.gov/sri>.