

# LED LIFE TESTING STATIONS

LED Workstation designed to meet your specifications for LED life measurement



LTS LED LIFE TESTING STATION

## COMPLETE, EASY-TO-USE

The Labsphere's LTS LED Life test station is a customized multi-purpose LED test station designed for high volume throughput. The system applies a variety of optical and electrical test measurements to an array of up to twenty discrete LEDs in less than 60 seconds. Optical Measurements include total radiant and luminous flux, peak wavelength, dominant wavelength, full width/half max (FWHM), CIE purity and CIE chromaticity. Electrical measurements include forward voltage while controlling forward current and leakage current while controlling reverse voltage. This is achieved through database integration at each stage of the testing sequence.

## FEATURES:

Turnkey System for high volume testing

Ergonomically designed workstation allows the operator to easily monitor tests

Back-illuminated CCD Spectroradiometer provides high sensitivity

Single measurement sequence simultaneously performs both optical and electrical tests

Measures up to 20 discrete LEDs in less than 60 seconds

## MEASURES:

Total radiant flux

Total luminous flux

Peak wavelength

Centroid wavelength

Dominant wavelength

Full width/Half max

CIE purity

CIE Chromaticity

Forward voltage

Forward current

Leakage current

## FLEXIBLE DESIGN

The LTS is comprised of a convenient workstation which houses a 9-inch Spectralon integrating sphere, precision power supplies, a back-lit research-grade CCD Spectrometer, a common single dimensional bar code reader, and a personal computer with monitor. The system is supplied with LED Carrier boards and 200 burn-in boards for lamp testing. A set of five tungsten-halogen spectral flux standards, with calibration traceable to National Institute of Standards and Technology (NIST), is included with each system.

## ACCURATE

The system's integrating sphere incorporates a mirrored baffle and an infrared filter which help to minimize spatial sensitivity and stray light, and maximize optical accuracy. Spectral data from the spectrograph is evaluated in 1 nm increments. System software compares the spectral data to the flux data emitted by a calibration lamp. The spectral data is summed across the visible spectrum and converted to luminous data using the comparison method as recommended by CIE-127 technical report.

The electrical system includes a uniquely designed multiplexer board and an LED carrier board. The multiplexer board acts as the switching mechanism that sequentially drives through each LED mounted on the carrier board in as little as 3 seconds, simultaneously performing all optical and electrical measurements. The carrier boards are designed to accommodate thru-hole LEDs with a 0.60 mm square 2-post mounting configuration capable of holding TO-46 heads. Up to 20 LEDs can be loaded manually onto an individual carrier board. The board is mounted into a specially designed holder inside the integrating sphere where an operator, with a simple computer keystroke, can select parameters for each test.

# Specifications

## Model Number

LED Life Test Station (LTS)

## System Includes

Integrating Sphere Assembly  
Multiplexer box  
Dell Computer with application software  
Workstation Desk  
A/C Control Box and Spectrometer  
Keithly Source Meter  
LPS-150 Lamp Power Supply  
Various Electrical cabling  
Spectrometer Fiber Optic Cable  
Qty 3, SCL-050 Spectral Flux Standards with 71 data point calibration data  
10 spare extension boards  
Install CD-ROMs  
System Manual

## System Properties and Performance

### Integrating Sphere

Reflectance Material	Spectralon®
Inner Diameter	9-inches
Reflectance	99%

### Calibration Lamp

Electrical Rating	SCL-050 4.2V, 1.05A
Photometric Ratings	50lm, 3000K, 600hrs

### Optical Test data

Spectral Range	380 - 7000 nm
Radiant Flux Range	1 mW - 100 W

### Optical Specifications

Spectral Range	380 - 720 nm
Wavelength Accuracy	0.5 nm
Color accuracy	$\pm 0.001$ (x and y) Illuminant A
Optical Resolution	2 - 3 nm (Bandwidth)
Positional Sensitivity	$< \pm 0.5\%$
Calibration Traceability	NIST
Optical Radiation levels	*
Typical Cycle Time	$< 3$ seconds per LED
Spectral Repeatability	$< 0.2$ nm

### Electrical Specifications

Forward Voltage Measurement	*
Voltage Uncertainty	0.02 Vdc (at 4.00 V)
Voltage Repeatability	0.01 Vdc (at 4.00 V)
Current Measurements	*
Current Uncertainty	$< 1\%$ (at 20 mA)
Current Repeatability	0.09 mA (at 20 mA)
Reverse Leakage Current Uncertainty	0.01 mA (at 10 Vdc)
Reverse Leakage Current Repeatability	0.01 mA (at 10 Vdc)
Burn-in and Carrier Board Temperature	85°C

### Dimensions

Weight	6 ft x 3 ft x 4.33 ft 280 lbs
Electrical requirements	115VAC, 60Hz, 20A (system draws 6A)

\*Optimized to customer requirements