



WESTBORO
PHOTONICS

CLS100

COMPACT LUMINANCE STANDARD

CLS100

KEY FEATURES

Small and Portable
Low Cost
Easy to Use
NIST Traceable
Long Life
LED or Incandescent



APPLICATIONS

Validate Instruments
Validate Measurement
Methods

The CLS100 is a stable diffuse luminance and chromaticity standard.

- Measurement procedure validation
- Instrument performance evaluation
- Comparison of results between instruments and labs

The CLS100 encloses a selected and seasoned LED or tungsten light source, a light mixing cavity and an opal diffusing glass target.

Important advantages:

- Sintered PTFE construction which resists flaking, oxidation and deterioration
- Diffusing glass target that is easily cleaned
- Closed light mixing cavity prevents contamination from dust and debris

Simple Operation

Operation of the CLS100 requires the connection of a current source and voltmeter. Simply supply the required forward current, I_f , to the CLS then wait two minutes for stabilization and input the measured forward voltage V_f , into the Light Metrics Calculator software. The Light Metrics Calculator

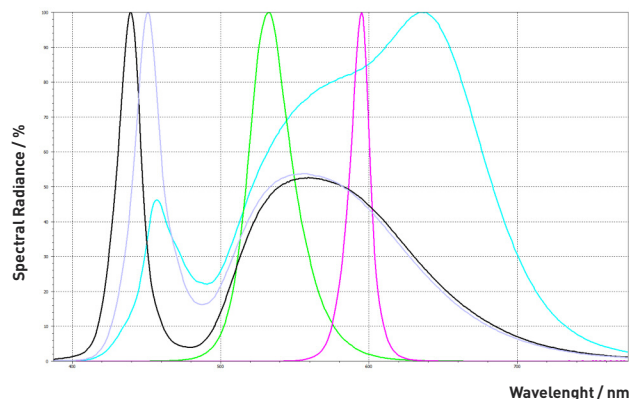
includes a section designed to keep track of lamp usage time and user notes.

LED Temperature Correction

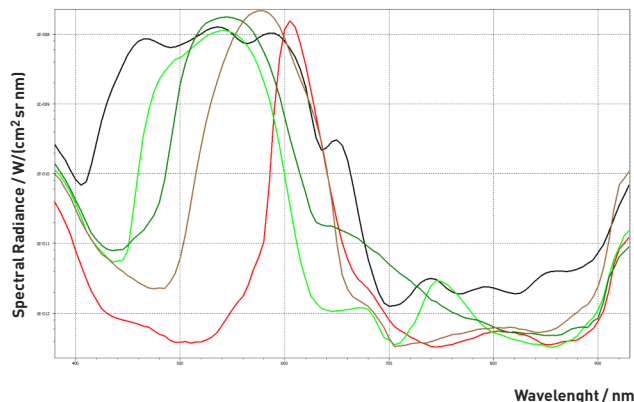
The Light Metrics Calculator computes and displays the light input and output metrics from the electrical parameters, I_f and V_f . This method accounts for changes in LED junction temperature by knowing the LED's forward voltage. The compensation allows the CLS100 to provide reliable results over a wide range of ambient temperatures without the use of either temperature monitoring or control. Corrected results include: cd/m^2 , fL , u' , v' , x , y , CCT, dominant, peak and centroid wavelengths, purity, radiance, and FWHM. Optional results include spectral radiance (at 1nm intervals), NVIS Class A and B, (scaled and un-scaled radiance).

Spectral distributions of stock NVIS sources

LED CLS CURVES



NVIS CLS CURVES



ORDERING INFORMATION

LAMP TYPES

LUMINANCE

Tungsten White 2400 K	10 or 30 cd/m ²
LED White 5500 K	10, 30 cd/m ²
LED Royal Blue 455 nm	10, 30 cd/m ²
LED Blue 470 nm	10, 30 cd/m ²
LED Cyan 505 nm	10, 30, 50 cd/m ²
LED Green 530 nm	10, 30, 50 cd/m ²
LED Amber 590 nm	10, 30, 50 cd/m ²
LED Red-Orange 615 nm	10, 30 cd/m ²
LED Red 625 nm	10, 30 cd/m ²
LED NVIS Green A	1.5 fL
LED NVIS Green B	1.5 fL
LED NVIS Yellow	1.5 fL
LED NVIS Red	1.5 fL

Ordering Examples:

Incandescent at 10 cd/m²: CLS100-Tungsten-2400K-10
 White 3300 K LED at 30 cd/m²: CLS100-LED-5500K-30
 Red 615 nm LED at 30 cd/m²: CLS100-LED-625nm-30

Notes:

1. CLS100-Tungsten may be calibrated at one luminance only
2. Higher or lower luminance values may be available
3. User to supply Keithley sourcemeter or Arroyo laser source to power the CLS

Calibration Accuracy

0.002 for x, y, u', v' chromaticity; 3% for luminance

Precision for LED Standards

<0.0005 for x, y, u', v' chromaticity; 1.5% for luminance

Reported Values

cd/m², fL, u', v', x, y, CCT, dominant wavelength, purity, radiance, peak, centroid and FWHM.

Optional: Spectral Radiance @1 nm, NVIS Class A and B

Non-uniformity

<2% over central 1 cm of target

Operating Temperature

15 °C to 35 °C

Physical Dimensions

45 x 45 x 140 (mm), 200 g, 15 mm target diameter

Required Current Source

10 mA to 100 mA @ 0.1% uncertainty such as Arroyo 4205 or Keithley 24xx

User Supplied Voltmeter

10 V scale with 0.03% uncertainty such as Arroyo 4205 or Keithley 24xx

PC

PC with Excel 2003 or later, USB port

