

# OL 457

## LED Integrating Sphere Calibration Standard *(preliminary)*



The OL 457 LED Integrating Sphere Calibration Standard is a cost-effective, wavelength-selectable, nearly monochromatic NIST-traceable radiant light source. It provides more flexibility and higher performance than filtered sources and is a significantly lower cost alternative to monochromators. Typical applications include anywhere a stable or calibrated source is required, e.g. MTF, radiance and irradiance sensitivity of detectors, arrays and cameras, linearity testing, dynamic range testing, signal-to-noise testing etc.

Interchangeable LED sources offer more versatility, affording users with an unprecedented level of uniformity and accurate continuously variable intensity over many decades. The interchangeable LED modules are easily installed and removed from the optics head without affecting calibration accuracy. These fully integrated source and heat sink assemblies offer long life and high thermal efficiency for increased stability and output.

The OL 457 consists of an optics head and a separate precision constant current source (OL 401-C Controller). This enables remote location of either unit, which facilitates alignment or positioning of the source with respect to the device to be calibrated. The source module/ optics head is designed such that it can be configured with integrating spheres having diameters of 4, 6, 8, 12, and 18 inches.

The OL 401-C Calibration Standard Controller automatically recognizes installed LED modules and provides the appropriate precision current to the LEDs, readout of LED current, amplification of the detector signal, and readout of the radiance.

### OL 457-X LED Modules

	Peak wavelength (nm)	HBW (nm)	Nominal Max. Output *		Min. Output	
			W/(sr m <sup>2</sup> )	Cd/m <sup>2</sup>	W/(sr m <sup>2</sup> )	Cd/m <sup>2</sup>
<b>LED-375 (UVA)</b>	375 ± 5	10 ± 5	8	N/A	0.001	N/A
<b>LED-405 (Violet)</b>	405 ± 6	16 ± 6	140	200	0.001	0.0014
<b>LED-465 (Blue)</b>	465 ± 10	23 ± 4	120	4,810	0.001	0.0406
<b>LED-520 (Green)</b>	520 ± 10	36 ± 8	49	20,390	0.001	0.4121
<b>LED-595 (Amber)</b>	595 ± 5	15 ± 5	18	8,720	0.001	0.4790
<b>LED-630 (Red)</b>	630 ± 10	16 ± 6	49	8,860	0.001	0.1805
<b>LED-870 (NIR)</b>	870 ± 20	50 ± 10	43	N/A	0.001	N/A

\*For 6" inch sphere (OL 457-6 source). Use the multipliers in the table below to calculate max. output for other sphere sizes

<b>OL 457-4</b>	1.8
<b>OL 457-6</b>	1.0
<b>OL 457-8</b>	0.7
<b>OL 457-12</b>	0.3
<b>OL 457-18</b>	0.06

All LED modules are calibrated with the sphere in W/(sr m<sup>2</sup>) unless otherwise requested

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### OL 457-OH OPTICS HEAD

Radiance Uncertainty .....	± 2% relative to NIST
Source Stability	
Short Term .....	± 0.5%
Long Term .....	± 2% 100 hours/ 1 year
Sphere Coating (reflectance) .....	99% (350 to 1100 nm)
Variable Aperture .....	micrometer-controlled
Shutter .....	open/ closed

### OL 401-C Controller

Radiance Display (4½ digits) .....	W/(sr m <sup>2</sup> )
Radiance Display Range .....	0.0001 to 50,000 W/(sr m <sup>2</sup> ) (auto-ranging, manual, or software selectable)
Lamp Current	
Display .....	4 digits
Range .....	0 to 3.3 amperes DC
Power Cycle .....	60 sec ramp function
Accuracy .....	± 0.02% of full scale
Regulation .....	2ppm/V
Temperature Regulation .....	25ppm/ °C
Lamp Timer .....	0 - >1000 hours
Operating Temperature Range .....	15 ° to 35°C
Operating Humidity range .....	10% to 85% (non-condensing)
Power (user selectable) .....	120/240 VAC
Remote Interface .....	Full-speed USB and TTL-I/O
Size .....	12.0" x 9.38" x 5.38"
Weight .....	17.0 pounds



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