

PG-2S Spectroradiometer and Integrating Sphere Test System (Brochure)

<http://www.pegotester.com>

PEGO GROUP (HK) CO., LIMITED.

Address: Room 912A, Floor 9, Vader commercial building, Tongzhu Street, Mong Kok, Kowloon, Hongkong

E-MAIL: salesHK@pegotester.com

PEGO TESTER (JIANGXI)

ADDRESS: No.233, Yangshan Road, Yuanzhou District, Yichun, Jiangxi, 336000, China

E-MAIL: sales@pegotester.com

service@pegotester.com

TEL: 86-(0)795-3560528 FAX: 86-(0)795-3560528

EMC&EMI Test System: http://www.pegotester.com/products/EMC_EMI

Integrating Sphere System: http://www.pegotester.com/products/integrating_sphere

Goniophotometer test system: <http://www.pegotester.com/products/goniophotometer>

Electrical Safety Tester: http://www.pegotester.com/products/Safety_tester

Environment Test Chamber: http://www.pegotester.com/products/Test_chamber

AC&DC Power Supply: http://www.pegotester.com/products/power_supply

IEC60061-3 Lamp Gauges: <http://www.pegotester.com/products/gauge>

IEC and UL Probes for verification: <http://www.pegotester.com/products/probe>

1. Introduction:

PG-2S Spectroradiometer and Integrating Sphere System is applied to test the photometry, colorimetry and electricity parameters of LED lighting fixture, LED module and LED chips, includes chromaticity coordinates (x,y,u,v), color temperature(K), Color rendering index (Ra), SDCM, peak wavelength, dominate wavelength, purity, bandwidth, spectrum power distribution, luminous flux, radiation power and etc. The system is completely meet the requirements of CIE13.3:1995, CIE127-2007, IESNA LM-79, CIE84:1989 and etc.



2. Configuration:

- 1) PG-2S spectroradiometer (380nm~780nm, straylight: $\leq 0.015\%$, with English version software)
- 2) 105 AC Digital Power Meter (WT104 AC/DC digital power meter for optional)
- 3) 3005 CC&CV DC Power Supply (30V, 5A, 300W max)
- 4) 500VA AC power supply (500W)
- 5) 1.5M Integrating Sphere (1.75m and 2m for optional according to lamp size)
- 6) 0.3M Integrating Sphere (for LED chips)
- 7) Bifurcate Optical Fiber (1.5m)
- 8) 24V/50W Standard Lamp (for calibration of 1.5m integrating sphere)
- 9) 6V/10W Standard Lamp (for calibration of 0.3m integrating sphere)
- 10) 19 Inch Standard Cabinet
- 11) Computer and Printer (prepare by user, Window xp/98/2000 system, 2 RS-232 port)

3. Parameters:

- 1) PG-2S quick-scan CCD spectroradiometer

PG-2S adopts world advance holographically concave grating and Toshiba linear CCD detector, can realize millisecond grade test speed and reach high accuracy of Mechanical scanning spectroradiometer.

- Test parameters: chromaticity coordinates, color temperature, color rendering index, SDCM, peak wavelength, dominate wavelength, half bandwidth, relative spectrum power distribution, luminous flux (lumen), radiation power and etc.

- Wavelength: 380-780nm (200-1100nm for special order)
- Accuracy of wavelength: $\pm 0.5\text{nm}$
- Integral time: 0.1ms-20s

- Straylight: <0.015% (600nm), <0.03%(435nm)
- Accuracy of chromaticity coordinates: ± 0.0015 , ± 0.0005 (under luminaire A)
- Photometry linear: $\pm 0.5\%$
- Correlated color temperature (CCT): 1000~100000K
- Accuracy of CCT: $\pm 0.3\%$ (under luminaire A)
- Error of color rendering index: $\pm(0.3\% \pm 0.3)$

2) 105 Digital Power Meter (AC)

Communicate with PG-2S to test voltage (V), Current (A), power (W), power factor (PF)/frequency.

- Voltage: 75V/150V/300V/600V
- Current: 0.5A/2A/8A/20A
- Accuracy: $\pm(0.4\% \text{ reading} + 0.1\% \text{ range} + 1 \text{ digit})$
- With RS-232-C Interface

3) 3005 CC&CV DC power Supply

- Input voltage: AC 220V $\pm 3\%$, 50/60Hz
- Output voltage: 0.001V~30.000V (DC, adjustable)
- Output current: 0.001A~0.7999A 0.7900A~5.0000A
- Output power: 150W max
- Output voltage drift: $(\pm 0.04\% \text{ reading} + 1 \text{ mA})/10 \text{ min}$
- Output current drift: $(\pm 0.05\% \text{ reading} + 1 \text{ mA})/10 \text{ min}$
- With RS-232-C Interface

4) 500VA AC Power Supply

Give a stable power for LED lamps, it has the features of high power, low distortion, high stability and sine-wave output.

- Output power: 500VA(max)
- Output frequency: 45.00~65.00Hz
- Output voltage: 0.0~300.0V (adjustable)
- Voltage stability: $\leq 0.1\%/30 \text{ min}$
- Output voltage (max): 0-150V 4.2A, 0-300V 2.1A

5) Integrating sphere (1.5m&0.3m)

Integrating sphere provides a good test conditions for lamps. The shell inside coating with BaSO₄ with the features of stable and fadeless. And material of the shell adopts cold-roll steel, which is not easy to deformation. Side-opening design can meet the test requirement of 2 π geometry according to LM-79.

6) Bifurcate Optical Fiber

For signal transmission between spectroradiometer and integrating spheres.

7) Standard luminaire (OSRAM 50W/24V, 10W/6V)

Made by OSRAM, be used in calibration color temperature and luminous flux of the system.

8) 19 inch Cabinet

Put all the instruments in the cabinet, makes the system looks nice. With dustproof glass door and cooling fan, the cabinet can well protect the instruments.

4. Reference Standards

CIE 13.3:1995 Method of Measuring and Specifying Color Rendering of Light Sources

CIE 15-2004 Colorimetry

CIE 84:1989 Measurement of luminous flux

CIE 127-2007 Measurement of LED

CIE 177-2007 Colour Rendering of White LED Light Sources

IESNA LM-79 Electrical and Photometric Measurements of Solid-State Lighting Products

5. Lab Requirement

- Lab size: 3*4m (L*W)
- Two tables: 120cm*60cm
- Computer and printer: 2 pieces RS-232 ports, Windows 2000/windows XP/ Win 7 system

6. Reference Test Report (Check the next page)



Lightsource Test Report

Product Information

Product Number: B3-2

CIE Colorimetric Parameters

Chromaticity coordinates: $x=0.3443$ $y=0.3658$ $u(u')=0.2055$ $v=0.3275$ $v'(v')=0.4913$

CCT: $T_c=5074K$ ($duv=0.00727$)

Color Ratio: $R=0.134$ $G=0.836$ $B=0.029$

Peak Wavelength: 450nm

Half Bandwidth: 20.4nm

Dominant Wavelength: 567.2nm

Color Purity: 0.131

CRI: R_i : $R_a=70.4$

$R_1=69$

$R_2=71$

$R_3=71$

$R_4=76$

$R_5=69$

$R_6=59$

$R_7=84$

$R_8=65$

$R_9=0$

$R_{10}=29$

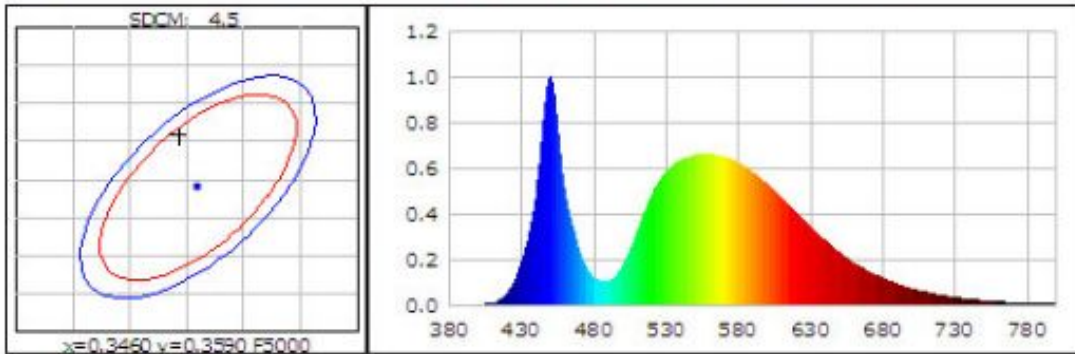
$R_{11}=71$

$R_{12}=26$

$R_{13}=67$

$R_{14}=83$

$R_{15}=66$



Photometric Parameters

Luminous Flux: 179.70 lm

Efficiency: 125.49 lm/W

Radiant Power: 0.525 W

Electric Parameters

Voltage: 3.0481V

Current: 0.4701A

Power: 1.43W

Power Factor: 1.0000

Frequency: 0.00Hz

Test Information

Scan Range: 380nm~800nm; 1nm Photometric Method:

Stabilization Time: 5 Min

Photometric Condition: Sphere diameter: 0.50m, 4T

Max of Signal: 43871 (3102)

CCD Integration Time: 127.25 ms

Condition: $T_x=26.9^{\circ}C$, $T_i=28.3^{\circ}C$

Test Lab:

Operator:

Test Device: PG - 2S

Test Time: 2013-09-25 11:44:25

Inspector: