PG-1S CCD 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 Disctrict, 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 vertification: http://www.pegotester.com/products/probe

1. Introduction:

PG-1S spectroradiometer and integrating sphere system is applied to LED luminaire and lighting fixture for photometric and colorimetric testing. Generally, it can test LED chips (includes 3014, 3528, 5050, power LED), LED tube, bulb, LED lighting fixture, and also can test spotlight, downlight, ceiling light and etc. The system completely meet the requirements of CIE, GB and LM-79.

Test parameters: chromaticity coordinates (x,y, u,v), correlated color temperature (CCT), SDCM, peak wavelength, spetrum distribution, pupil lumen, radiation flux, color shift, color ratio, color purity, luminous flux, rending index, luminous efficiency, power and etc.

2. Configuration:

1) PG-1S CCD spectroradiometer (wavelength: 380nm~780nm, 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) Optical Fiber
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, USB port)

3. Parameters:

1) PG-1S Fast-scan spectroradiometer

PG-1S adopts Sony linear CCD detector and good quality holographically concave, with features of fast test speed and high accuracy.

- Wavelength range: 380nm~780nm (visible range)
- Wavelength accuracyz: ±0.3nm
- Bandwidth: 1.6nm
- Chromaticity coordinates: ±0.0008 (under illuminant A)

- Linear: 0.5%
- Stray light: 2.00E-03
- Luminous flux range: 0.1lm~600000lm
- Color temperature: 1000k~100000k
- Test speed: 3ms~10s

2) 105 Digital Power Meter (AC)

Communicate with PG-1S to test voltage (V), Current (A), power (W), power factor (PF)/frequency.

- Voltage:10~600V(AC)
- Current: 0.005~20.00A (AC)
- Accuracy: ±(0.4% reading+0.1% range+1digit)

3) 3005 CC&CV DC power Supply

This DC power supply has the featues of stable, high accuracy and low-ripple.

- Input voltage: AC 220V±3%, 50/60Hz
- Output voltage: 0~30V (DC, adjustable)
- Output current: 0A~5A (DC, adjustable)
- Ouput power: 150W max

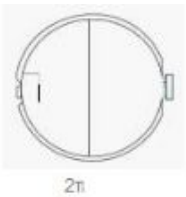
4) 500VA AC Power Supply

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: 45.00~400Hz (adjustable)
- Output waveform: sine-wave
- Output voltage: 0.0~300.0V (adjustable)
- Voltage stability: ≤0.1%/30min
- Output voltage (max): 0-150V 4.2A, 0-300V 2.1A

5) Integrating Sphere

There are two kinds of test structure as below:



4π Structure：The lamp under test is mounted in the center of the ball.

2π Structure：The lamp under test is mounted in the surface of the ball.

- Material: cabon steel
- Diameter: 1.5m (side-opening 200mm), 0.3m(side-opening60mm)
- Meet the requirement of CIE NO.84 (1989), adopts R93 coating material, reflectance: ρ≈0.93
- Lamp holder and clamps

1.5m: E40,E27,E14,GU10, G13/G15 (built-in support base)

0.3m: equip with SMD, DIP, power LED clamps

● Built in auxiliary lamp pole and baffle to meet the requirement of CIE, which can reduce the error of self-obsorption.

Tool	Application
Lamp holders	For bulbs, module, tube
Support base	Panel lamp
Side-opening	Spotlight, downlight, ceiling light, streetlight and other lighting fixture

6) Bifurcate Optical Fiber

For signal transmission between spectroradiometer and integrating spheres.

7) Osram Standard Lamp

Osram standard lamp is for calibration of luminous flux and color temperature, it can be traceable to NIM.

● DC lamp: 24V/50W (for dia. 1.5m integrating sphere), 12V/10W (for dia.0.3m integrating sphere)

● Spectrum range: 380nm~780nm

● Life time: more than 300h

● Color temperature: 2856K

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 Mesaurements of Solid-State Liguting Products

5. Lab Requirement

● Lab size: 3*4m (L*W)

● Two tables: 120cm*60cm

● Computer and printer: 2 pieces RS-232 ports and 1 USB port, Windows 2000/windows XP/ Win 7 system

● Power: 220V±10%, 50HZ/60HZ

6. Reference Test Report

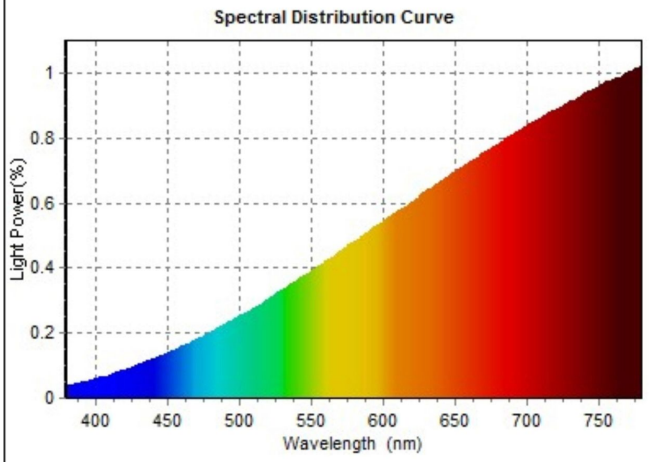
EGO GROUP

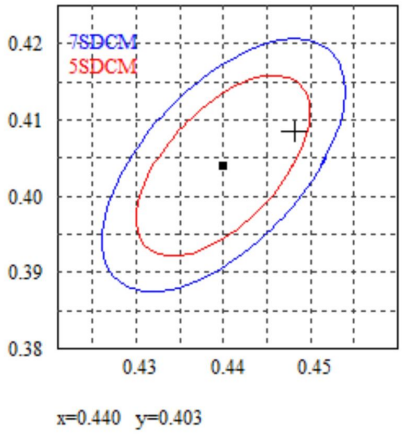
Report of Spectrum and Electric Test for Lamp

Report No.: Report Date: 2015-07-30

Basic Infomation			
Sample No.		Testing Date	2015-07-30
Sample		Equipments	SPEC1000A
Operator		Ambient Temperature	25 Deg C
Manufacture		Ambient Humidity	65

Testing Result





Spectral Distribution | Color Difference Chart

Chromaticity Coordinates	x=0.4480 y=0.4077 u=0.2561 v=0.3496				
Correlated Color Temperature	2851 K	Peak Wavelength	777.6 nm	FWHM	172.3 nm
Color Difference	4.1 SDCM	Color Shift	0.0001 duv		
Color Ratio	27.04%	(Ref-C) Main Wavelength	583 nm	(Ref-C) Color Purty	0.613
Luminous Flux	763.806 lm	Radiant Flux	4.9623 W		
Rendering Index	Ra=100.0 R1=100.0 R2=100.0 R3=99.9 R4=100.0 R5=100.0 R6=99.9 R7=99.9 R8=100.0 R9=100.0 R10=99.9 R11=100.0 R12=99.8 R13=100.0 R14=99.9 R15=100.0				
Electric Parameters					
Supply Voltage	220.4 V	Current	0.354 A		
Power	78.10 W	Power Factor	1.000		
Efficiency Parameters					
Luminous Efficiency	9.78 lm/W				