

LM-79-08 Test Report

for

GREEN CREATIVE LTD

ROOM 1206-07 NEW VICTORY HOUSE 93-103 WING LOK STREET,
CENTRAL HONGKONG

A23 PRODUCT

Model: 25HID840/277V/EX39

25HID840/277V/E26

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

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Report No.: HZ18010048b/R1

This report is replaced the old report No. HZ18010048b dated Feb. 01, 2018

The laboratory that conducted the testing detailed in this report has been accredited for SSL by NVLAP.

Review by:



Engineer: April Zou
Feb. 08, 2018



Approved by: 

Manager: Jim Zhang
Feb. 08, 2018

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Test Summary

Sample Tested: 25HID840/277V/EX39

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
146.7	3807.5	25.95	0.9952
CCT (K)	CRI	Stabilization Time (Light & Power)	
3912	84.3	60	

Table 1: Executive Data Summary

Note: The above results are recorded/ derived from measurements made using an Integrating Sphere.

Test specifications:

Date of Receipt	: Jan. 26, 2018
Date of Test	: Jan. 31, 2018
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	: IESNA LM-79-2008 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

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Sample Photos



25HID840/277V/EX39



25HID840/277V/E26

Equipment Under Test (EUT)

Name	: A23 PRODUCT
Model	: 25HID840/277V/EX39
Electrical Ratings	: 120-277V, 60Hz
Product Description	: EX39/E26 base, 4000K, CRI80
Manufacturer	: GREEN CREATIVE LTD
Address	: ROOM 1206-07 NEW VICTORY HOUSE 93-103 WING LOK STREET, CENTRAL HONGKONG

Note: Model 25HID840/277V/EX39 and model 25HID840/277V/E26 are identical except their different screw base. Model 25HID840/277V/EX39 is EX39 base. 25HID840/277V/E26 is E26 base. Model 25HID840/277V/EX39 was chosen to be representative model in this report.

TEST RESULTS

Test ambient temperature was 24.9°C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 60 minutes, and the total operating time including stabilization was 95 minutes.

The photometric distance of Goniophotometer is 2.47 m.

Luminous data was taken at 0.5° vertical intervals and 10.0° horizontal intervals.

Parameter	Result	
Test Voltage (V)	120.0	277.0
Voltage frequency (Hz)	60	60
Test Current (A)	0.217	0.098
Power Factor	0.9952	0.9361
Test Power (W)	25.95	25.47
THD A%	9.06	17.42
Luminous Efficacy (lm/W)	146.7	150.1
Total Luminous Flux (lm)	3807.5	3823.9
Color Rendering Index (CRI)	84.3	
R9	13	
Correlated Color Temperature (CCT) (K)	3912	
Chromaticity (Chroma x, Chroma y)	(0.3857, 0.3837)	
Chromaticity (Chroma u, Chroma v)	(0.2258, 0.3369)	
Chromaticity (Chroma u', Chroma v')	(0.2258, 0.5054)	
Duv	0.0017	
Average Beam Angle (°)	290.0	
Center Beam Candle Power (cd)	332	
Spacing Criteria	1.67 (0°-180°)/ 1.66 (90°-270°)	
Zonal Lumens in the 0°-60°Zone	29.93%	
Zonal Lumens in the 60°-90°Zone	30.00%	
Zonal Lumens in the 90°-120°Zone	25.15%	
Zonal Lumens in the 120°-180°Zone	14.92%	

Special Color Rendering Indices	
R1	83
R2	94
R3	95
R4	80
R5	83
R6	91
R7	84
R8	64
R9	13
R10	85
R11	80
R12	67
R13	86
R14	98
Rf	82
Rg	92

Table 2: Test data per Goniophotometer Method

Note: According to CIE 1976 (u',v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Spectral Power Distribution

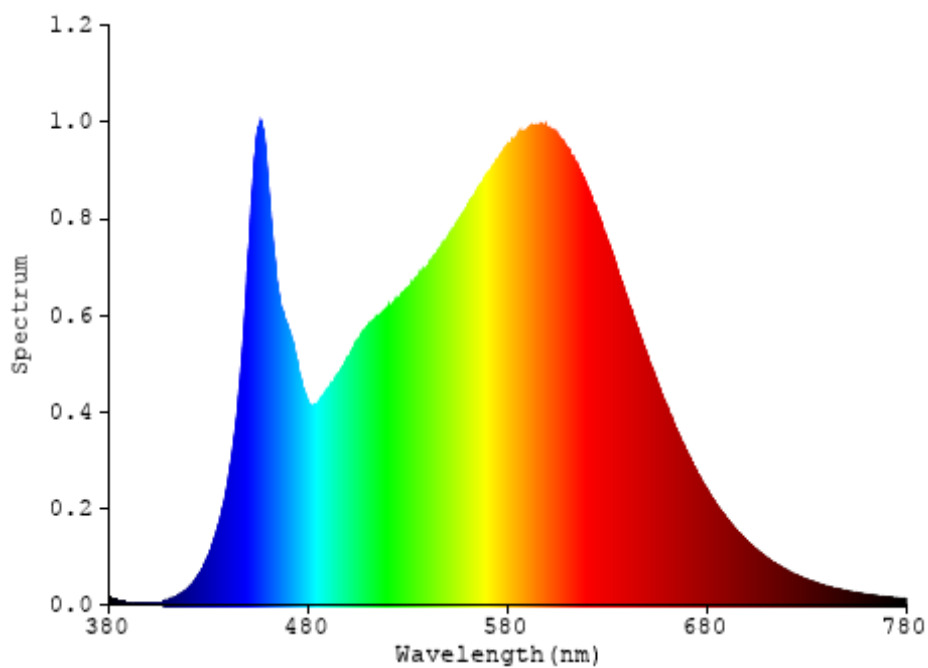


Chart 1: Spectral Power Distribution

Zonal Lumen Tabulation

$\gamma(^{\circ})$	Lumens	% Total
0- 10	31.839	0.84%
10- 20	96.103	2.52%
20- 30	161.404	4.24%
30- 40	226.322	5.94%
40- 50	286.797	7.53%
50- 60	336.973	8.85%
60- 70	371.576	9.76%
70- 80	387.345	10.17%
80- 90	383.408	10.07%
90-100	360.83	9.48%
100-110	322.96	8.48%
110-120	273.97	7.20%
120-130	217.986	5.73%
130-140	159.801	4.20%
140-150	104.756	2.75%
150-160	58.031	1.52%
160-170	23.812	0.63%
170-180	3.539	0.09%
Total	3807.5	100%

$\gamma(^{\circ})$	Lumens	% Total
0-130	3457.513	90.81%
130-180	349.939	9.19%
0-180	3807.5	100%

Table 3: Zonal Lumen Data

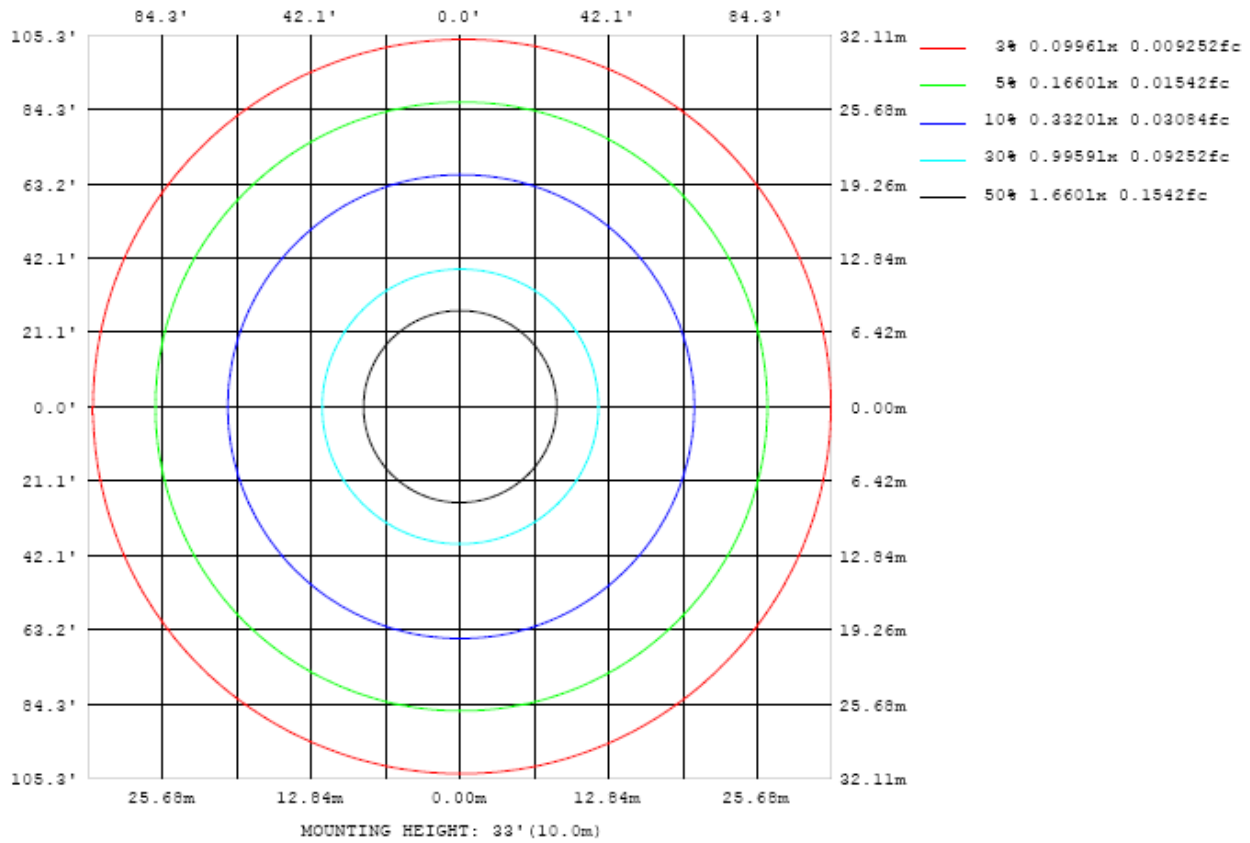


Chart 2: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots

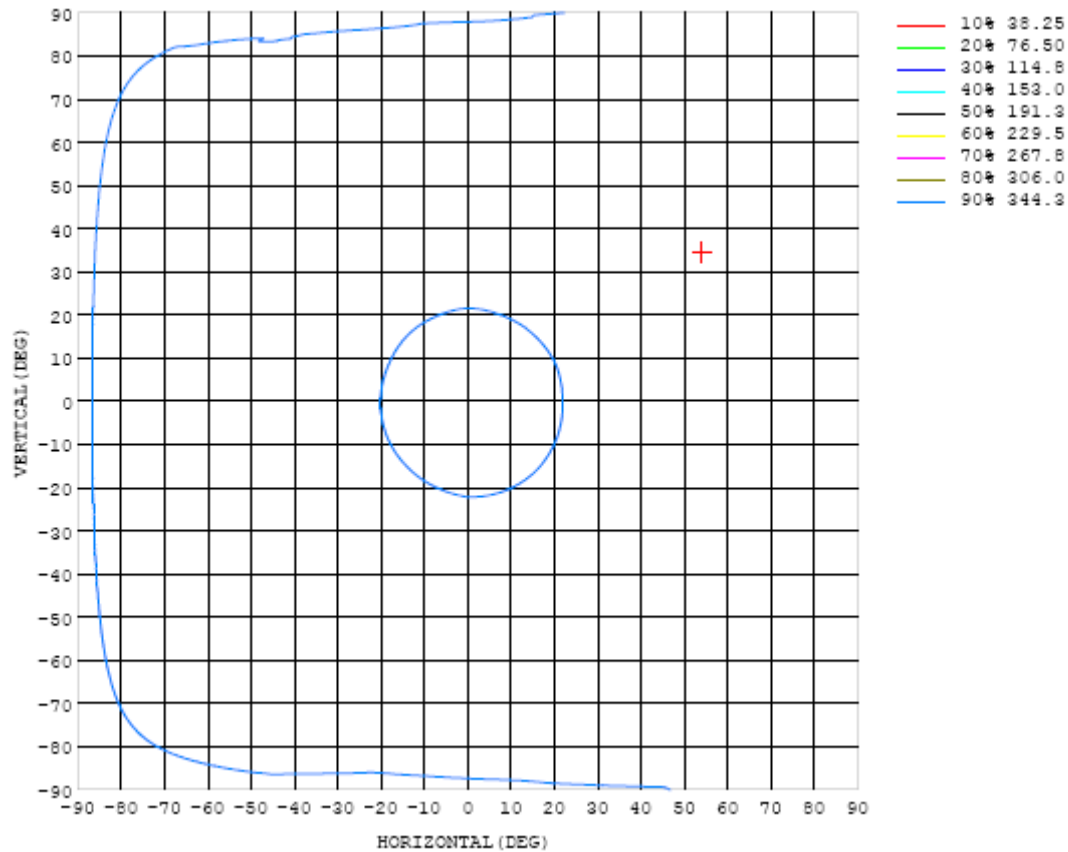


Chart 3: Isocandela Plot

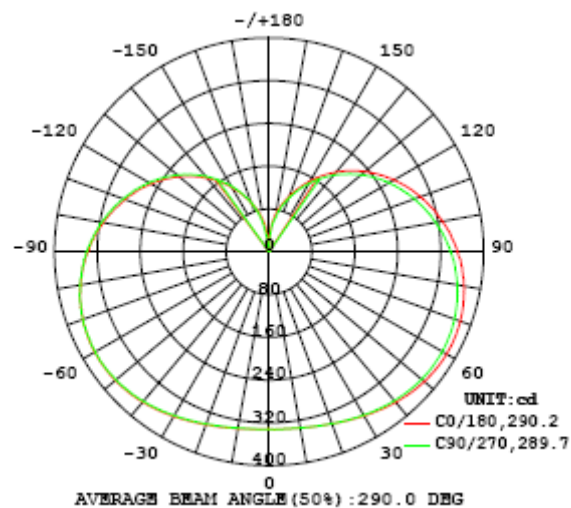


Chart 4: Polar Candela Distribution

Luminous Intensity Data

Table---1

UNIT: cd

C (DEG) y (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332			
5	333	333	333	332	333	333	333	333	333	333	333	333	333	333	333	332			
10	335	335	334	335	335	335	336	336	336	335	336	335	335	335	335	334			
15	338	338	338	338	338	339	339	339	339	339	339	339	338	338	338	338			
20	342	342	342	342	342	343	344	344	344	344	344	343	343	343	343	342			
25	348	348	347	347	347	348	349	349	349	349	349	349	348	348	348	348			
30	354	354	353	353	353	354	355	355	356	355	355	354	354	354	354	354			
35	361	360	359	358	358	360	360	361	361	361	360	360	360	360	361	361			
40	367	366	365	364	363	365	366	367	366	366	366	365	365	366	367	367			
45	373	372	369	368	368	369	370	371	371	371	370	369	369	371	372	373			
50	378	376	373	372	371	372	373	374	374	373	373	372	373	375	377	378			
55	381	379	375	374	373	373	375	376	375	375	374	374	375	376	379	380			
60	382	380	376	374	373	373	375	375	375	375	373	373	374	377	381	382			
65	382	380	375	373	371	371	373	373	373	372	371	371	372	376	380	382			
70	379	377	372	370	368	368	369	370	370	370	367	367	370	373	378	379			
75	375	373	367	365	363	362	364	364	364	364	361	363	365	368	374	375			
80	369	367	361	359	357	355	358	357	356	357	354	356	358	360	367	368			
85	362	360	354	351	349	347	349	348	348	346	345	347	350	353	359	360			
90	351	350	344	342	338	336	339	338	338	338	335	338	339	344	349	351			
95	341	340	334	331	328	325	327	327	328	325	324	326	329	332	339	340			
100	329	327	322	318	316	314	315	313	314	314	313	314	317	321	327	327			
105	315	314	309	305	303	300	301	300	300	300	298	301	304	308	313	314			
110	300	300	294	292	289	286	286	285	286	286	284	287	290	294	298	300			
115	285	285	280	277	274	271	272	271	271	270	269	272	275	278	284	284			
120	269	269	265	261	258	255	255	254	254	254	253	256	259	262	267	268			
125	251	251	248	245	241	239	238	237	237	237	236	239	242	245	249	251			
130	233	233	230	227	224	221	220	218	218	219	218	221	223	227	231	233			
135	214	214	212	209	205	202	201	200	199	199	199	202	205	208	212	213			
140	194	194	192	190	187	183	182	180	180	179	179	182	185	188	192	194			
145	174	175	173	171	167	163	162	160	160	159	158	160	164	167	171	174			
150	153	153	152	150	147	143	141	139	139	138	137	139	142	146	150	153			
155	131	132	131	129	126	123	121	118	118	116	114	116	120	125	129	132			
160	111	111	111	109	106	103	100	97.9	97.5	95.5	93.5	94.9	97.8	104	108	111			
165	91.0	92.1	91.4	89.5	85.8	83.5	80.6	78.0	77.5	76.6	72.1	69.1	72.3	82.7	85.7	90.3			
170	71.3	72.7	72.3	68.7	62.7	59.8	55.0	54.2	55.5	53.5	44.9	40.8	31.5	39.7	54.5	68.6			
175	47.2	50.0	49.9	47.4	41.9	34.5	25.8	21.3	15.8	8.30	3.51	0.29	1.69	15.3	31.9	41.4			
180	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84	6.84			

Table 4: Luminous Intensity Data

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Aug. 23, 2017	Aug. 22, 2018
Digital Power Meter	PF2010A	HZTE028-01	Aug. 10, 2017	Aug. 09, 2018
AC Power Supply	DPS1060	HZTE001-06	Aug. 10, 2017	Aug. 09, 2018
DC Power Supply	WY12010	HZTE004-03	Aug. 10, 2017	Aug. 09, 2018
Standard Source	D908	HZTE012-01	Aug. 20, 2017	Aug. 19, 2018
Standard source	SCL-1400	HZTE012-02	Aug. 20, 2017	Aug. 19, 2018
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 16, 2017	Aug. 15, 2018
Temperature recorder	JM624U	HZTE018-08	Aug. 17, 2017	Aug. 16, 2018

Table 6: Test Equipment List

TEST METHODS

Seasoning of SSL Product

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning. Therefore, no seasoning was performed.

Goniophotometer Method

Photometric and Electrical Measurements

An EVERFINE Type C Model GO-R5000 Goniophotometer was used to measure the intensity at each angle of distribution for each sample. The photometric distance is 2.475m for near-field measurement or 30m for far-field measurement. Bandwidth of spectroradiometer is 380nm-780nm.

Ambient temperature was measured at the same height of the sample mounted on the Goniophotometer equipment. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation.

The stabilization time typically ranges from 30 min (small integrated LED lamps) to 2 or more hours for large SSL luminaires). It can be judged that stability is reached when the variation (maximum – minimum) of at least 3 readings of the light output and electrical power over a period of 30 min, taken 15 minutes apart, is less than 0.5 %.

Electrical measurements including voltage, current, and power were measured using the Everfine Digital Power Meter.

Some graphics were created with Photometric Plus software.

The standard reference of the Goniophotometer system is halogen incandescent lamp, the intensity distribution type is omni-directional, and is traceable to the National Institute of Metrology P.R. China.

The uncertainty of goniophotometer system reported in this document is expanded uncertainty is 2.3% with a coverage factor k=2.

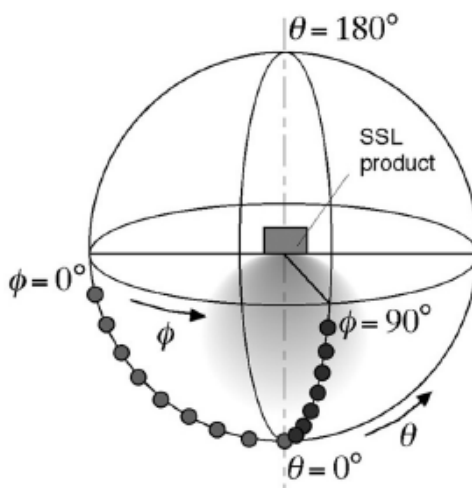
Color Characteristics Measurements

The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as values that are spatially average, weighted to intensity, over the angular range where light is intentionally emitted from the SSL product. The color characteristics measurements are using gonio-spectroradiometer.

Color Spatial Uniformity

The characteristics of SSL products may be spatially non-uniform, the chromaticity coordinate shall be measured at two vertical planes ($C=0^\circ/180^\circ$ and $C=90^\circ/270^\circ$) and at 10° or less intervals for vertical angle until the light output dropped to below 10% of the peak intensity. The averaged weighted chromaticity coordinate was calculated from these points. The data was then analyzed to check for delta color differences of the u' , v' chromaticity coordinates. The spatial non-uniformity of chromaticity, $\Delta u'v'$, is determined as the maximum deviation (distance on the CIE (u' , v') diagram) among all measured points from the spatially averaged chromaticity coordinate.

The geometry for the chromaticity measurement using gonio-spectroradiometer is shown as following.



*** End of Report ***

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