



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
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Test #: L02130803

Date: 2/13/2013



NVLAP LAB CODE 200927-0

**Test Report:** L02130803

**Model Number:** H-16044

**Report Prepared For:** HI-LITE MFG  
 13450 MONTE VISTA AVE, CHINO, CA. 91710

**Test:** Electrical and Photometric tests as required by the IESNA test standards.

**Standards Used:** Appropriate part or all test guidelines were used for test performed:  
*IESNA LM79: 2008* Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products  
*ANSI NEMA ANSLG C78.377: 2008* Specification of the Chromaticity of Solid State Lighting Products

**Description of Sample:** Client submitted the sample. Fixture catalog number is H-16044. Received in working and undamaged condition. No modifications were necessary.

**Sample Arrival Date:** 2/13/13

**Date of Tests:** 2/13/13 - 2/18/13

**Seasoning of Sample SSL:** No seasoning was performed in accordance with IESNA LM-79.

**Equipment List**

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	01/04/14
Xitron Power Analysis System	2503AH	MT-EL01	01/09/14
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/14
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

**LM-79 Test Summary**

<b>Manufacturer:</b>	HI-LITE MFG
<b>Model Number:</b>	H-16044
<b>LAMPCAT:</b>	N/A
<b>Driver Model Number:</b>	THOMAS RESEARCH PRODUCTS TRC-040S105DS
<b>Total Lumens:</b>	1326.42
<b>Input Voltage (VAC):</b>	120.00
<b>Input Current (Amp):</b>	0.29
<b>Input Power (W):</b>	37.09
<b>Input Power Factor:</b>	0.9951
<b>Total Harmonic Distortion @ 120V(%):</b>	8.4%
<b>Total Harmonic Distortion @ 277V(%):</b>	N/A
<b>Efficacy:</b>	35.76
<b>Color Rendering Index (CRI):</b>	65.50
<b>Correlated Color Temperature (K):</b>	4004
<b>Chromaticity Coordinate x:</b>	0.3850
<b>Chromaticity Coordinate y:</b>	0.3941
<b>Ambient Temperature (°F):</b>	77.0
<b>Stabilization Time (Hours):</b>	1:35
<b>Total Operating Time (Hours):</b>	2:25

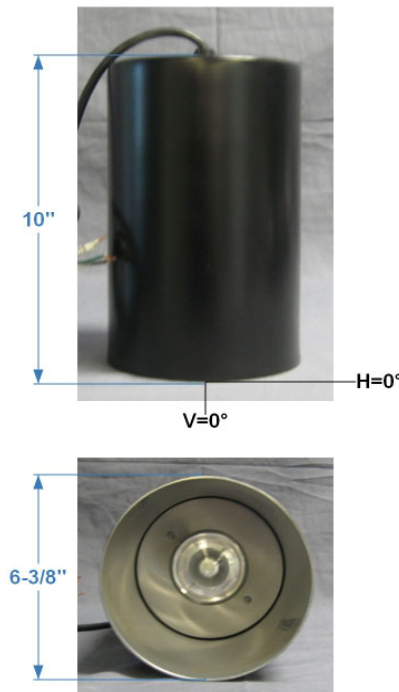
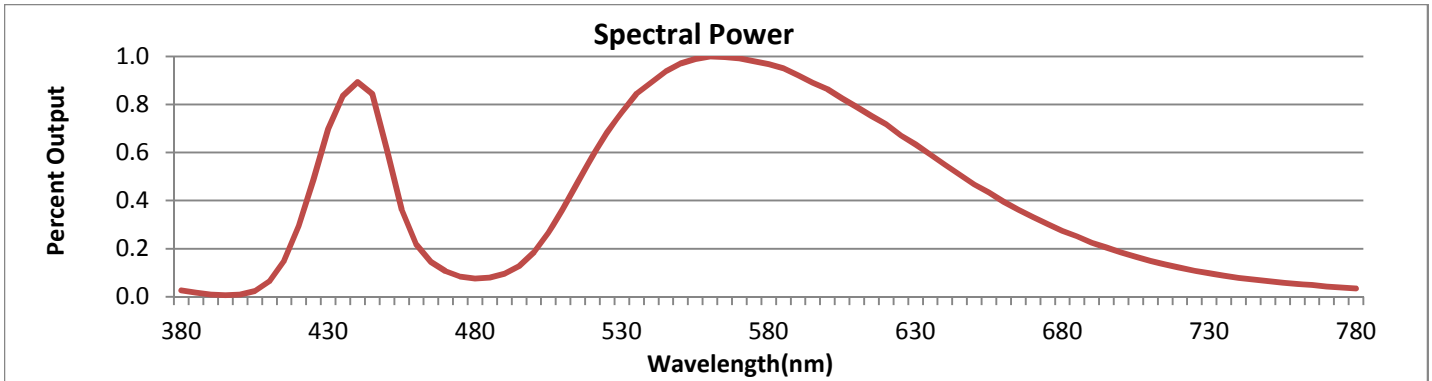


FIG. 1 LUMINAIRE

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



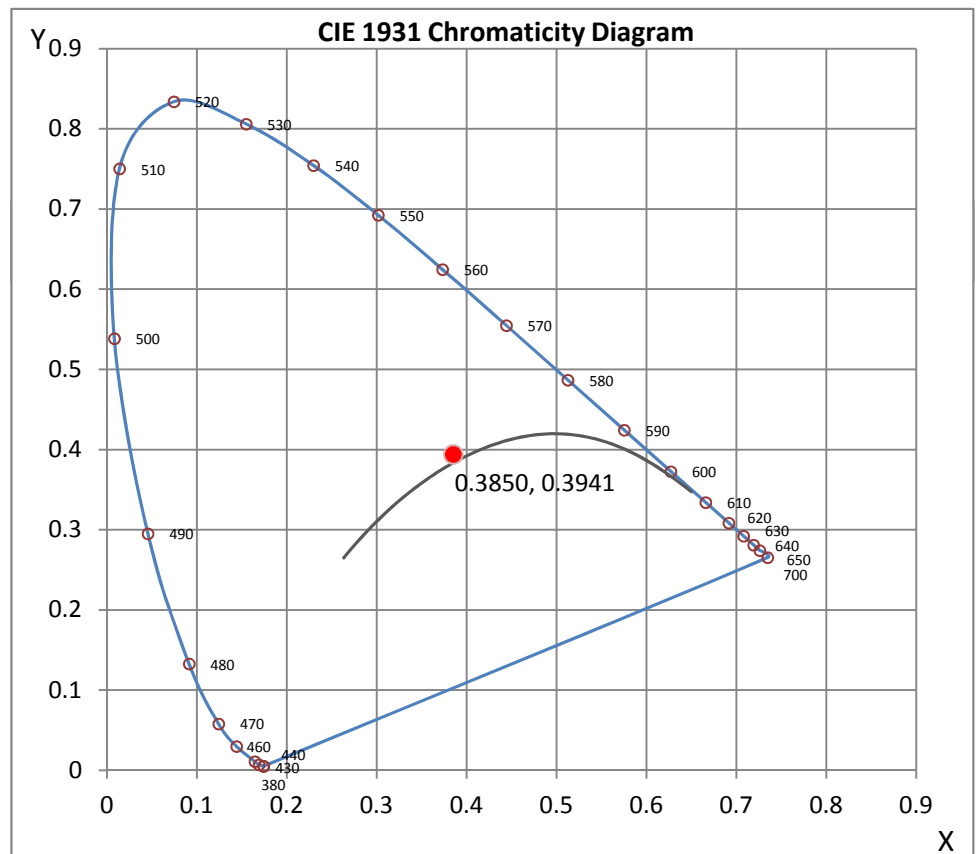
Wavelength	W/m <sup>2</sup> nm	440	0.0967	510	0.0397	580	0.1049	650	0.0506	720	0.0131
380	0.0029	450	0.0660	520	0.0632	590	0.0998	660	0.0428	730	0.0107
390	0.0009	460	0.0237	530	0.0832	600	0.0936	670	0.0359	740	0.0085
400	0.0010	470	0.0115	540	0.0966	610	0.0856	680	0.0297	750	0.0070
410	0.0070	480	0.0082	550	0.1052	620	0.0777	690	0.0244	760	0.0057
420	0.0318	490	0.0103	560	0.1083	630	0.0686	700	0.0198	770	0.0046
430	0.0756	500	0.0201	570	0.1075	640	0.0595	710	0.0161	780	0.0038

**CRI & CCT**

x	0.3850
y	0.3941
u'	0.2213
v'	0.5097
CRI	65.50
CCT	4004
Duv	0.00661

**R Values**

R1	63.21
R2	70.09
R3	74.71
R4	66.77
R5	61.42
R6	56.83
R7	77.23
R8	54.07
R9	-30.12
R10	28.64
R11	60.21
R12	29.73
R13	63.36
R14	84.99



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**Test Methods**

**Photometric Measurements - Goniophotometer**

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

**Spectral Measurements - Integrating Sphere**

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Test Report Released by:

Jeff Ahn  
Engineering Manager

Test Report Reviewed by:

Steve Kang  
Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 10*



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## Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L02130803.IES**

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L02130803  
[TESTLAB] LIGHT LABORATORY, INC.  
[ISSUEDATE] 2/18/2013  
[MANUFAC] HI-LITE MFG  
[LUMCAT] H-16044  
[LUMINAIRE] 6-3/8"DIA. X 10"H. PENDANT CYLINDER LUMINAIRE  
[MORE] 30W LED WITH SEMI-SPECULAR REFLECTOR, RIBBED GLASSLENS  
[BALLASTCAT] THOMAS RESEARCH PRODUCTS TRC-040S105DS  
[BALLAST] INPUT: 100-277VAC, 50/60HZ, 0.48A OUTPUT: 12-36VDC, 1.05A, 38Wmax  
[LAMPPOSITION] 0,0  
[LAMPCAT] N/A  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[\_INPUT] 120VAC, 37.09W  
[\_TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1326
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	36
Total Luminaire Watts	37.09
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	2.44
Spacing Criterion (90-270)	2.44
Spacing Criterion (Diagonal)	1.98
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.52 ft (Diameter)
Luminous Width (90-270)	0.52 ft (Diameter)
Luminous Height	0.00 ft

**IES INDOOR REPORT**  
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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	42612	42612	42612
55	20312	20312	20312
65	14454	14454	14454
75	9047	9047	9047
85	4625	4625	4625

CANDELA TABULATION

	<u>0</u>
0.0	198.61
5.0	204.62
15.0	235.50
25.0	299.03
35.0	434.97
45.0	595.04
55.0	230.08
60.0	147.94
62.5	134.07
65.0	120.63
67.5	106.56
70.0	91.00
72.5	70.54
75.0	46.24
77.5	31.15
80.0	21.46
82.5	13.82
85.0	7.96
87.5	4.00
90.0	0.00

**IES INDOOR REPORT**  
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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	46.67	N.A.	3.50
0-30	146.79	N.A.	11.10
0-40	347.76	N.A.	26.20
0-60	1143.84	N.A.	86.20
0-80	1316.49	N.A.	99.30
0-90	1326.42	N.A.	100.00
10-90	1321.6	N.A.	99.60
20-40	301.09	N.A.	22.70
20-50	663.65	N.A.	50.00
40-70	915.02	N.A.	69.00
60-80	172.65	N.A.	13.00
70-80	53.71	N.A.	4.00
80-90	9.93	N.A.	0.70
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	1326.42	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	4.82
10-20	41.85
20-30	100.12
30-40	200.97
40-50	362.56
50-60	433.51
60-70	118.94
70-80	53.71
80-90	9.93
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



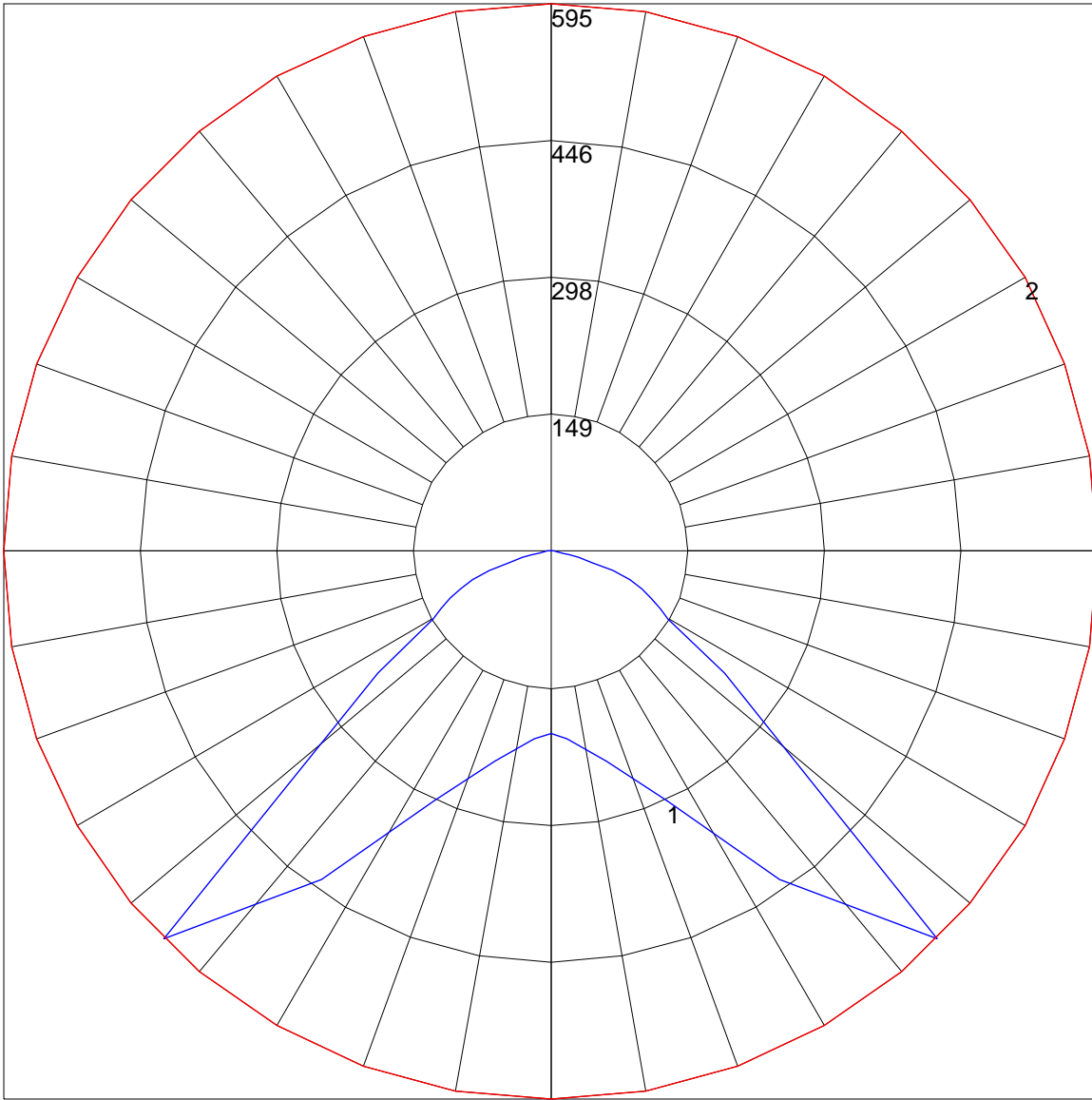
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0		
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0	
0	119	119	119	119	119	116	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96		106	102	98	94		98	94	91	94	91	89	90	88	86	84
2	98	89	82	76		95	88	81	75		84	78	74	81	76	72	78	74	70	68
3	88	77	68	61		86	75	67	61		72	65	60	69	63	58	67	62	57	55
4	79	66	57	50		77	65	56	49		62	55	48	60	53	48	58	52	47	45
5	72	58	48	41		69	56	47	40		54	46	40	52	45	39	50	44	39	37
6	65	50	41	33		63	49	40	33		47	39	33	46	38	33	44	37	32	30
7	59	44	35	28		57	43	34	28		42	34	28	40	33	27	39	32	27	25
8	54	39	30	24		53	39	30	23		37	29	23	36	29	23	35	28	23	21
9	50	35	26	20		48	35	26	20		33	25	20	32	25	20	31	24	20	18
10	46	32	23	17		45	31	23	17		30	22	17	29	22	17	28	22	17	15

POLAR GRAPH



Maximum Candela = 595.04 Located At Horizontal Angle = 0, Vertical Angle = 45  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (45) (Through Max. Cd.)