



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

Test #: S01130101

Date: 1/1/2013



NVLAP LAB CODE 200927-0

**Test Report:** S01130101

**Model Number:** LUMINAIRE CATALOG NUMBER

**Report Prepared For:** MANUFACTURE NAME  
 8165 E. KAISER BLVD, ANAHEIM, CA 92808

**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 LUMINAIRE CATALOG NUMBER. Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 1/1/13

**Date of Tests:** 1/1/13 - 1/1/13

**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>	MANUFACTURE NAME
<b>Model Number:</b>	LUMINAIRE CATALOG NUMBER
<b>LAMPCAT:</b>	N/A
<b>Driver Model Number:</b>	LED DRIVER CATALOG NUMBER
<b>Total Lumens:</b>	2426.85
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.31
<b>Input Power (W):</b>	36.99
<b>Input Power Factor:</b>	0.9916
<b>Total Harmonic Distortion @ 120V(%):</b>	9.6%
<b>Total Harmonic Distortion @ 277V(%):</b>	12.5% (0.16A, 37.22W, 0.8422PF)
<b>Efficacy:</b>	65.61
<b>Color Rendering Index (CRI):</b>	81.20
<b>Correlated Color Temperature (K):</b>	3490
<b>Chromaticity Coordinate x:</b>	0.4030
<b>Chromaticity Coordinate y:</b>	0.3840
<b>Ambient Temperature (°F):</b>	77.0
<b>Stabilization Time (Hours):</b>	0:35
<b>Total Operating Time (Hours):</b>	1:05
<b>Off State Power(W):</b>	0.00

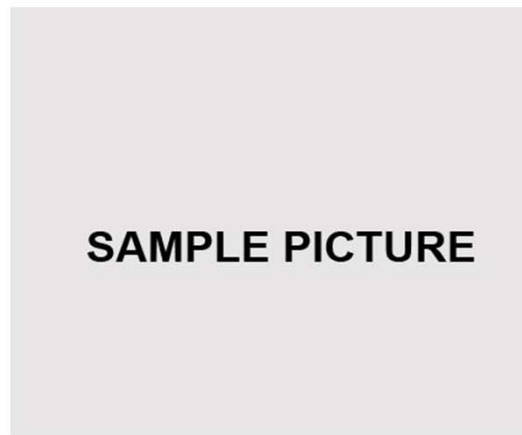
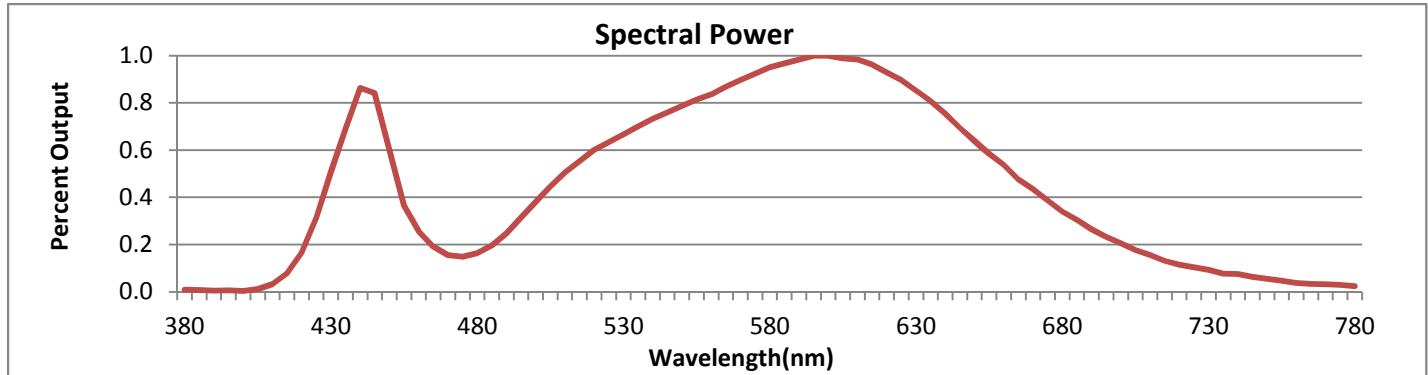


FIG. 1 LUMINAIRE

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



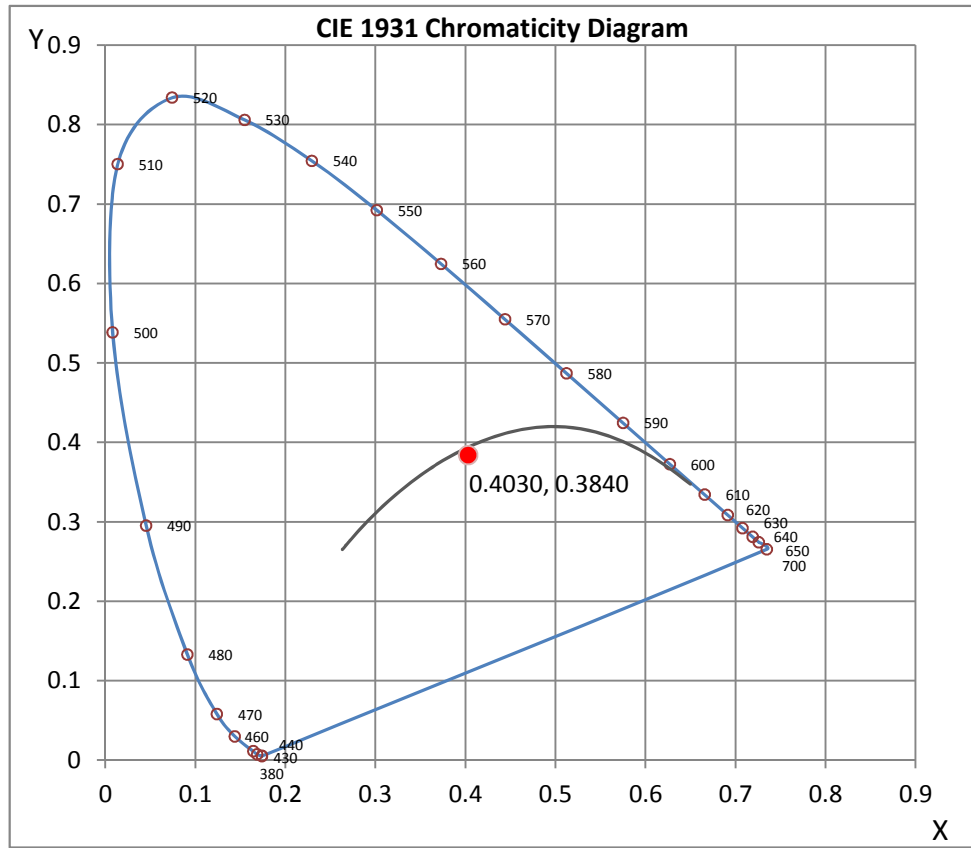
Wavelength	W/m <sup>2</sup> nm	440	0.1580	510	0.0923	580	0.1740	650	0.1170	720	0.0210
380	0.0016	450	0.1100	520	0.1100	590	0.1800	660	0.0984	730	0.0169
390	0.0009	460	0.0467	530	0.1220	600	0.1830	670	0.0795	740	0.0137
400	0.0006	470	0.0283	540	0.1340	610	0.1800	680	0.0621	750	0.0101
410	0.0058	480	0.0299	550	0.1440	620	0.1700	690	0.0484	760	0.0068
420	0.0304	490	0.0452	560	0.1530	630	0.1560	700	0.0375	770	0.0058
430	0.0927	500	0.0695	570	0.1640	640	0.1380	710	0.0285	780	0.0045

**CRI & CCT**

x	0.4030
y	0.3840
u'	0.2370
v'	0.5081
CRI	81.20
CCT	3490
Duv	-0.00247

**R Values**

R1	80.80
R2	85.30
R3	88.80
R4	81.90
R5	80.40
R6	80.30
R7	84.60
R8	67.60
R9	18.30
R10	65.60
R11	81.80
R12	65.50
R13	81.00
R14	93.30



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

**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: 9*



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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : LED-INDOOR-SAMPLE.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] S01130101  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 1/1/2013  
 [MANUFAC] MANUFACTURE NAME  
 [LUMCAT] LUMINAIRE CATALOG NUMBER  
 [LUMINAIRE] LUMINAIRE SIZE & DESCRIPTION  
 [BALLASTCAT] LED DRIVER CATALOG NUMBER  
 [BALLAST] ELECTRICAL PROPERTIES OF THE DRIVER  
 [LAMPPOSITION] 0,0  
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
 [\_INPUT] 120VAC, 36.99W  
 [\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2427
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	66
Total Luminaire Watts	36.99
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.28
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.36
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.92 ft
Luminous Width (90-270)	1.48 ft
Luminous Height	0.00 ft

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3392	3221	2825
55	3241	2742	2225
65	3020	2142	1624
75	2362	1497	1265
85	1520	855	686

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : LED-INDOOR-SAMPLE.IES

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
<b>0</b>	935.72	935.72	935.72	935.72	935.72
<b>5</b>	932.46	932.65	932.82	932.72	932.70
<b>10</b>	920.53	921.18	922.73	924.20	924.50
<b>15</b>	900.88	902.48	905.45	908.43	908.95
<b>20</b>	874.27	877.00	881.94	883.64	882.29
<b>25</b>	840.49	844.62	849.95	843.50	837.86
<b>30</b>	799.78	805.43	805.92	790.24	782.28
<b>35</b>	751.29	758.95	748.97	722.74	708.46
<b>40</b>	696.11	704.43	682.26	640.63	622.22
<b>45</b>	633.74	640.68	601.77	549.01	527.87
<b>50</b>	565.15	567.29	511.11	453.82	431.98
<b>55</b>	491.28	486.54	415.55	359.38	337.23
<b>60</b>	421.72	408.71	331.88	276.36	252.01
<b>65</b>	337.29	313.09	239.23	186.43	181.34
<b>70</b>	248.88	211.59	153.11	139.87	135.42
<b>75</b>	161.53	127.67	102.35	91.33	86.54
<b>80</b>	91.61	69.41	55.06	45.20	37.45
<b>85</b>	35.00	28.58	19.70	17.30	15.79
<b>90</b>	0.00	0.00	0.00	0.00	0.00

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : LED-INDOOR-SAMPLE.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	344.30	N.A.	14.20
0-30	733.02	N.A.	30.20
0-40	1195.09	N.A.	49.20
0-60	2028.23	N.A.	83.60
0-80	2398.54	N.A.	98.80
0-90	2426.85	N.A.	100.00
10-90	2338.15	N.A.	96.30
20-40	850.79	N.A.	35.10
20-50	1307.38	N.A.	53.90
40-70	1083.36	N.A.	44.60
60-80	370.31	N.A.	15.30
70-80	120.09	N.A.	4.90
80-90	28.32	N.A.	1.20
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	2426.85	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	88.71
10-20	255.59
20-30	388.73
30-40	462.06
40-50	456.59
50-60	376.55
60-70	250.22
70-80	120.09
80-90	28.32
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

**IES INDOOR REPORT**  
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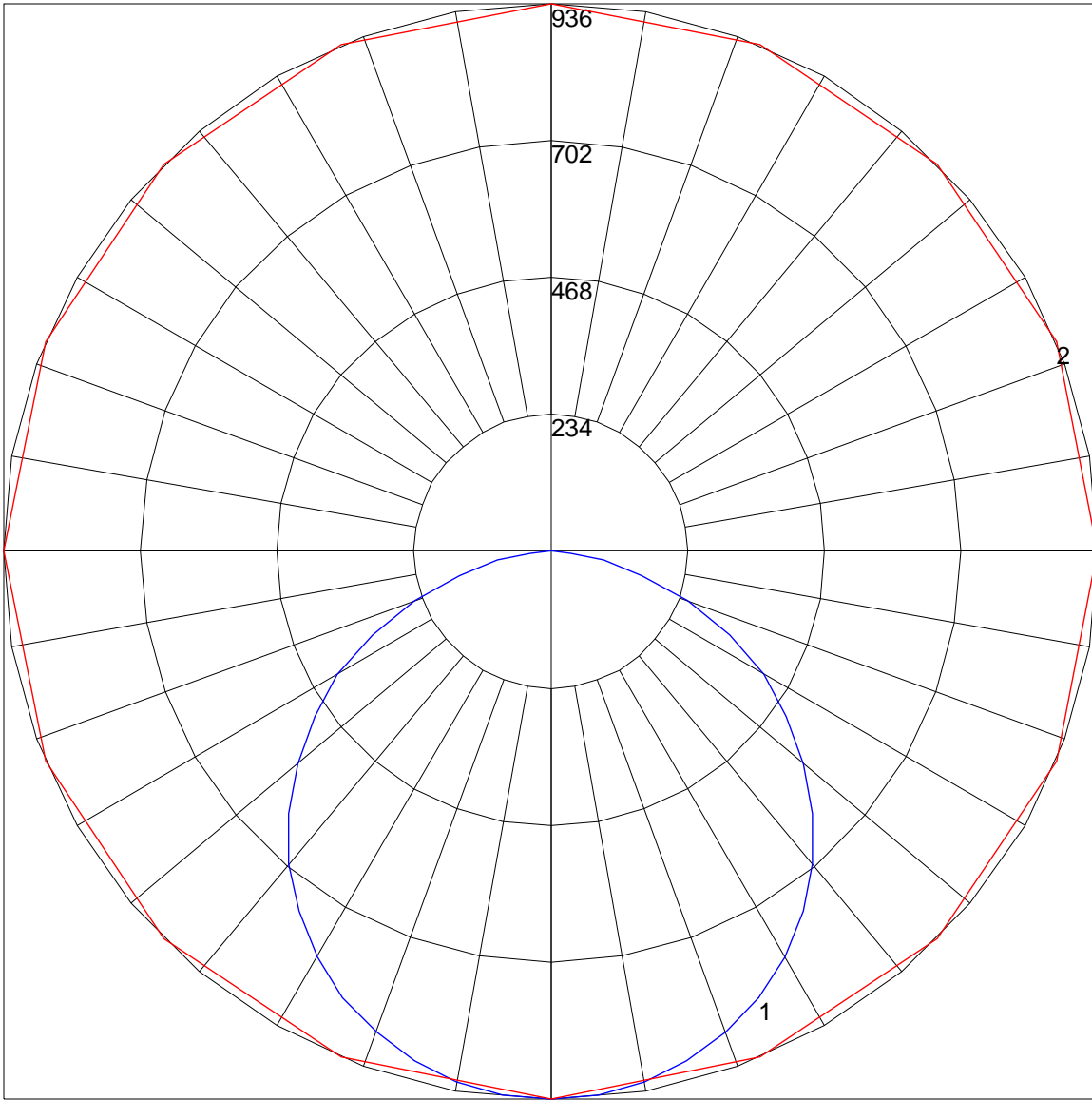
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	68	64	62
4	84	73	64	58	82	71	64	57	69	62	57	67	61	56	65	59	55	53
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	39	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	33	28	40	33	28	39	33	28	38	32	28	26



POLAR GRAPH



Maximum Candela = 935.72 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)