



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

Test #: L99999999

Date: 12/30/2013



NVLAP LAB CODE 200927-0

Test Report: L99999999

Model Number: INDOORDLC01

Report Prepared For: LIGHT LABORATORY INC.
 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 INDOORDLC01. Received in working and undamaged condition. No modifications were necessary.

Sample Arrival Date: 12/10/12

Date of Tests: 12/12/12 - 12/14/12

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	01/04/13
Xitron Power Analysis System	2503AH	MT-EL01	01/09/13
Fluke Digital Thermometer	52kJ	MT-TP02-GC	01/04/13
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.

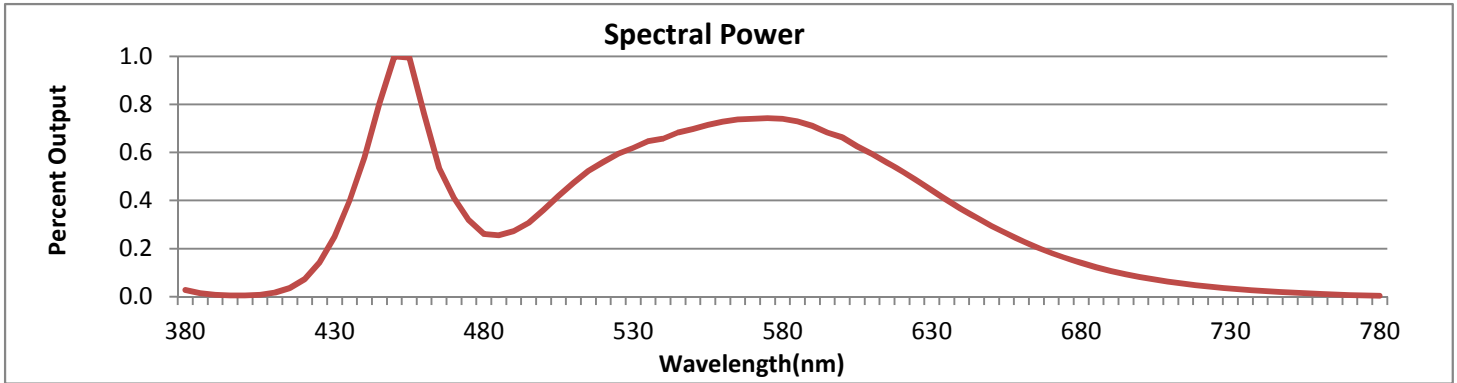
LM-79 Test Summary

Manufacturer:	LIGHT LABORATORY INC.
Model Number:	INDOORDLCO1
LAMPCAT:	N/A
Driver Model Number:	INVENTRONICS EUC-200S490ST
Total Lumens:	15804.65
Input Voltage (VAC):	120.00
Input Current (Amp):	1.48
Input Power (W):	177.62
Input Power Factor:	0.9976
Total Harmonic Distortion @ 120V(%):	4.9%
Total Harmonic Distortion @ 277V(%):	14.4% (0.69A, 174.62W, 0.9134PF)
Efficacy:	88.98
Color Rendering Index (CRI):	77.30
Correlated Color Temperature (CCT):	5142
Chromaticity Coordinate x:	0.3418
Chromaticity Coordinate y:	0.3563
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	2:15
Total Operating Time (Hours):	2:50



FIG. 1 LUMINAIRE

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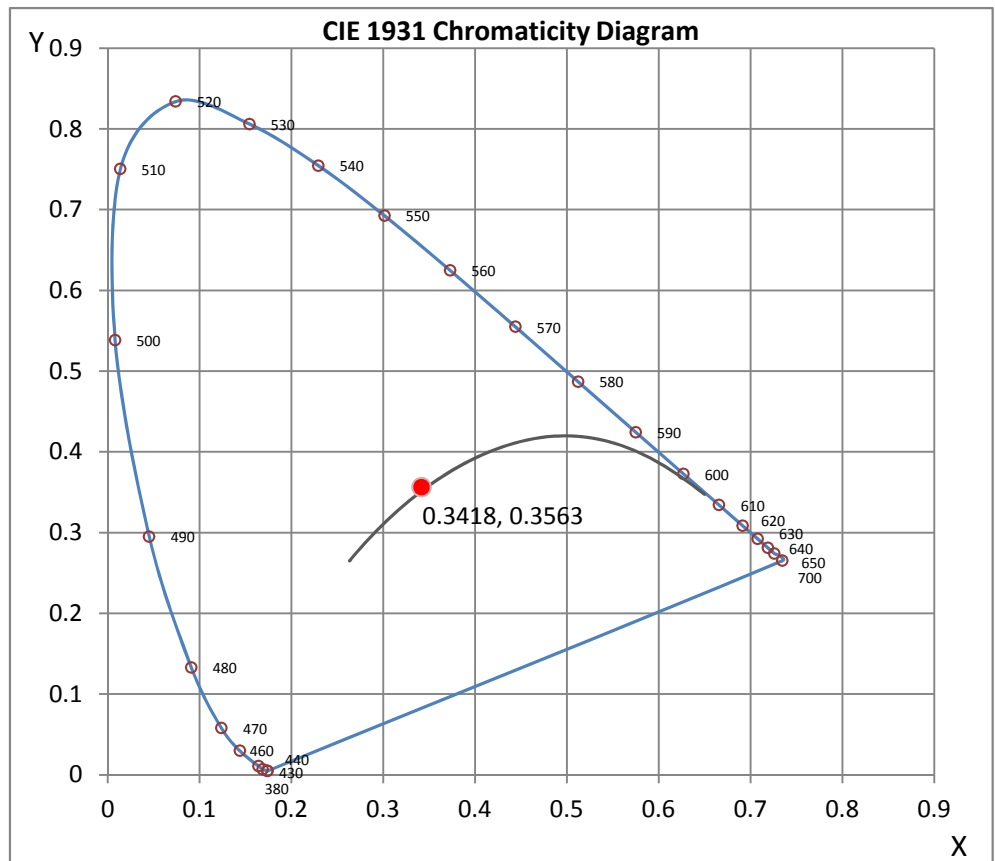
Wavelength	W/m ² nm	440	0.8798	510	0.7205	580	1.1248	650	0.4477	720	0.0687
380	0.0416	450	1.5196	520	0.8519	590	1.0804	660	0.3540	730	0.0502
390	0.0113	460	1.1551	530	0.9410	600	1.0079	670	0.2773	740	0.0363
400	0.0077	470	0.6241	540	0.9997	610	0.9023	680	0.2134	750	0.0256
410	0.0247	480	0.3962	550	1.0604	620	0.7943	690	0.1613	760	0.0170
420	0.1100	490	0.4141	560	1.1077	630	0.6717	700	0.1228	770	0.0101
430	0.3774	500	0.5487	570	1.1260	640	0.5527	710	0.0930	780	0.0051

CRI & CCT

x	0.3418
y	0.3563
u'	0.2074
v'	0.4865
CRI	77.30
CCT	5142
Duv	0.00369

R Values

R1	74.16
R2	83.07
R3	89.07
R4	76.30
R5	74.91
R6	76.15
R7	84.40
R8	60.41
R9	-15.27
R10	59.37
R11	73.36
R12	53.96
R13	76.72
R14	93.69



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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:

Joseph Shin
 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 : L99999999.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L99999999
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 12/18/2012
[MANUFAC] LIGHT LABORATORY INC.
[LUMCAT] INDOORDLC01
[LUMINAIRE] 13-3/8"DIA. X 14-1/8"H. LED HIGHBAY
[MORE] ONE MODULE WITH TWENTY-FOUR DAYLIGHT LED
[MORE] CLEAR TEMPERED GLASS AND ACRYLLIC PRISMATIC OPTICS
[BALLASTCAT] INVENTRONICS EUC-200S490ST
[BALLAST] INPUT: 100-277VAC 50/60HZ, 2.4A OUTPUT: 24-40VDC, 4.9ADC
[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, 177.62W
[_TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	15805
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	89
Total Luminaire Watts	177.62
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.76
Spacing Criterion (90-270)	0.76
Spacing Criterion (Diagonal)	0.68
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.79 ft (Diameter)
Luminous Width (90-270)	0.79 ft (Diameter)
Luminous Height	0.00 ft

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L99999999.IES

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	24542	24542	24542
55	19010	19010	19010
65	17131	17131	17131
75	16190	16190	16190
85	30962	30962	30962

CANDELA TABULATION

	<u>0</u>
0.0	26557
1.0	26481
3.0	26162
5.0	25676
7.0	25147
9.0	24557
11.0	23916
13.0	23102
15.0	22009
17.0	20466
19.5	17597
22.5	12945
25.5	8174
29.0	4611
33.0	2669
37.5	1531
42.5	911
47.5	671
55.0	497
65.0	330
75.0	191
85.0	123
90.0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L99999999.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	8073.8	N.A.	51.10
0-30	12410.08	N.A.	78.50
0-40	13830.21	N.A.	87.50
0-60	14941.33	N.A.	94.50
0-80	15601.63	N.A.	98.70
0-90	15804.65	N.A.	100.00
10-90	13840.2	N.A.	87.60
20-40	5756.41	N.A.	36.40
20-50	6493.2	N.A.	41.10
40-70	1503.32	N.A.	9.50
60-80	660.31	N.A.	4.20
70-80	268.10	N.A.	1.70
80-90	203.02	N.A.	1.30
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	15804.65	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	1964.45
10-20	6109.35
20-30	4336.28
30-40	1420.13
40-50	736.79
50-60	374.33
60-70	392.20
70-80	268.10
80-90	203.02
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

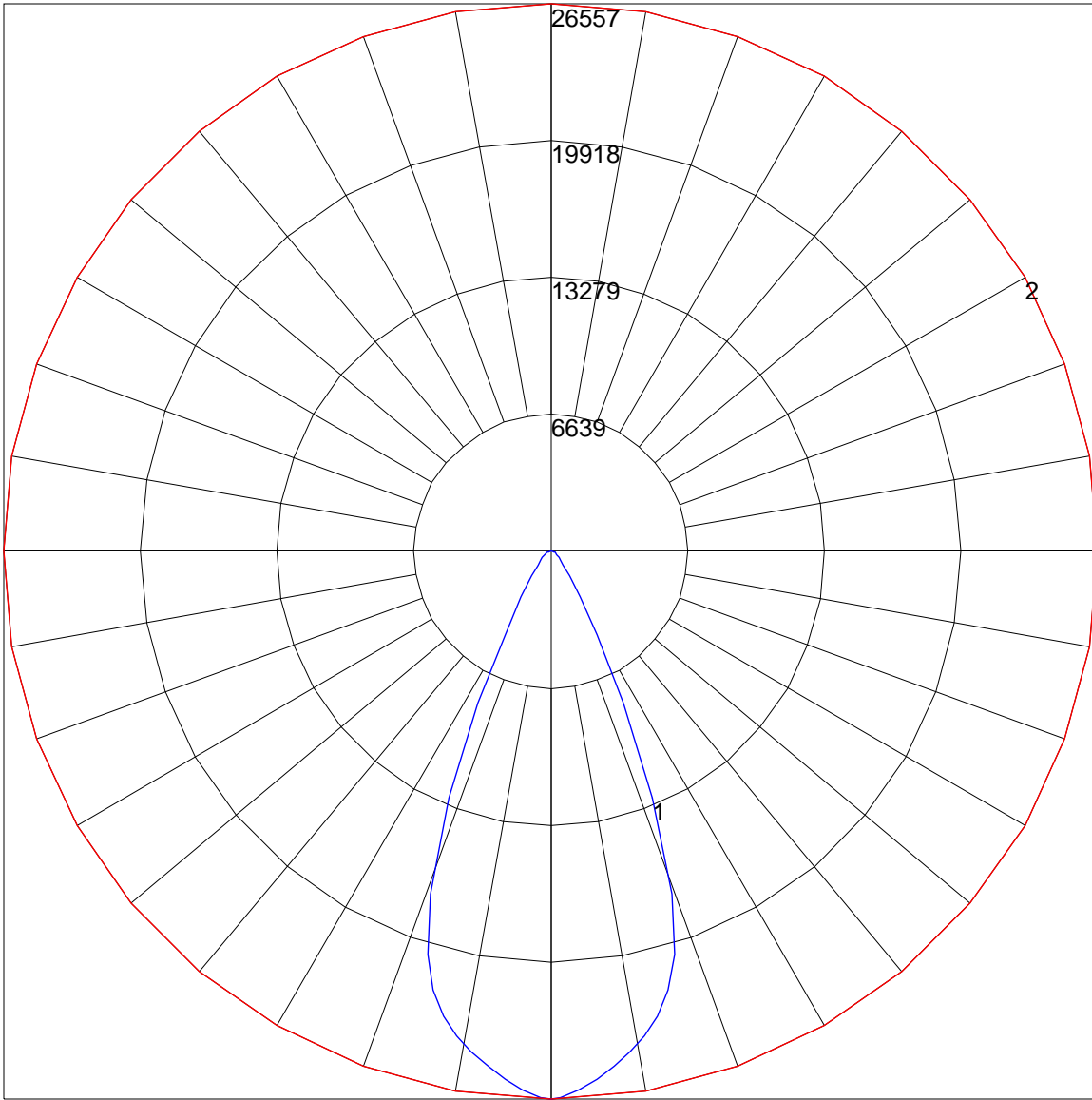
IES INDOOR REPORT
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	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	116	116	116	116	111	111	111	106	106	106	102	102	102	100	0
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92	0
2	107	102	98	94	105	100	96	93	97	94	91	94	91	89	91	89	87	86	0
3	102	95	90	86	100	94	89	85	91	87	84	89	86	83	87	84	81	80	0
4	97	90	84	80	95	88	83	79	86	82	78	84	80	77	82	79	76	75	0
5	93	84	79	74	91	83	78	74	82	77	73	80	76	73	78	75	72	71	0
6	88	80	74	70	87	79	73	69	77	73	69	76	72	68	75	71	68	67	0
7	85	76	70	66	83	75	69	65	74	69	65	72	68	65	71	67	64	63	0
8	81	72	66	62	80	71	66	62	70	65	62	69	65	61	68	64	61	60	0
9	78	68	63	59	76	68	62	59	67	62	59	66	62	58	65	61	58	57	0
10	74	65	60	56	73	65	59	56	64	59	56	63	59	56	62	58	55	54	0

POLAR GRAPH



Maximum Candela = 26557 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.)