



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

Report No: L021508901

Date: 3/5/2015



NVLAP LAB CODE 200927-0

Report No: L021508901

Report Prepared For: Prudential Ltg.
1774 E. 21st Street, Los Angeles, CA 90058

Model Number: S1-LED4-HO-04-WA

Test: Electrical and Photometric tests

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
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is S1-LED4-HO-04-WA. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 2/23/15

Date of Tests: 3/3/15 - 3/5/15

Seasoning of Sample: 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	11/10/15
Xitron Power Analysis System	2503AH	MT-EL01	10/20/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/05/16
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.

Test Summary

Manufacturer:	Prudential Ltg.
Model Number:	S1-LED4-HO-04-WA
Driver Model Number:	OSRAM OPTPTRONIC OT48W/PRG2000C/UNV/DIM/L
Total Lumens:	3759.93
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.36
Input Power (W):	43.06
Input Power Factor:	1.00
Current ATHD @ 120V(%):	8%
Current ATHD @ 277V(%):	N/A
Efficacy:	87
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	2:15
Off State Power(W):	0.00

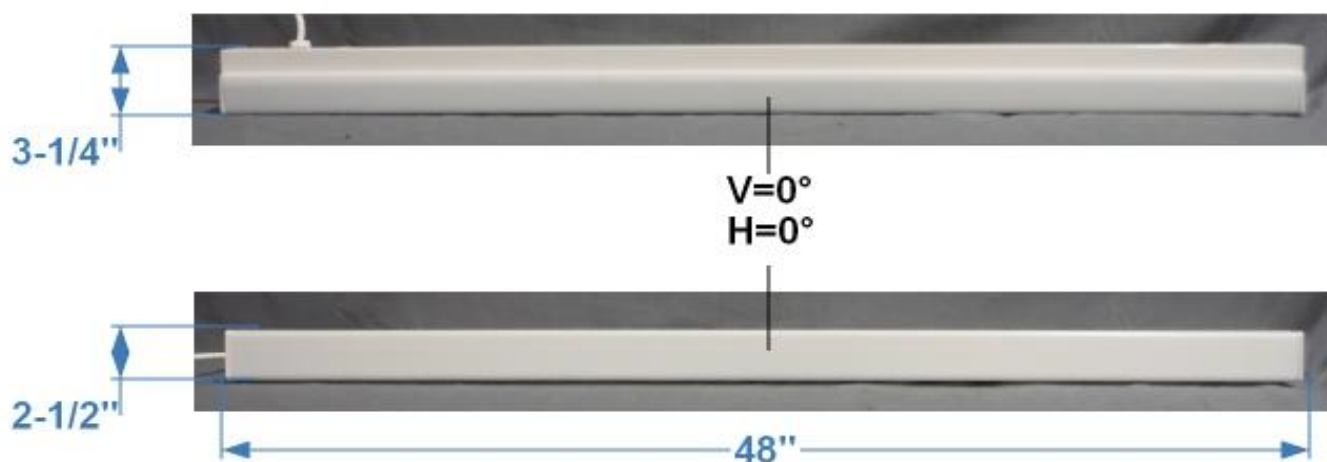


FIG.1 LUMINAIRE



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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.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

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*

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



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Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L021508901.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L021508901
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 3/5/2015
[MANUFAC] PRUDENTIAL LTG.
[LUMCAT] S1-LED4-HO-04-WA
[LUMINAIRE] 2-1/2"L. X 48"W. X 3-1/4"H. LINEAR DIRECT LUMIANIRE
[MORE] DIFFUSED LENS
[BALLASTCAT] OSRAM OPTPTRONIC OT48W/PRG2000C/UNV/DIM/L
[BALLAST] INPUT: 120-277VAC, 0.52-0.23A, 50/60Hz OUTPUT: 10-55VDC, 700-2000mA, 48W
[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, 43.06W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3760
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	87
Total Luminaire Watts	43.06
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.58
Spacing Criterion (90-270)	1.26
Spacing Criterion (Diagonal)	1.60
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.21 ft
Luminous Width (90-270)	3.98 ft
Luminous Height	0.13 ft

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L021508901.IES

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	7517	7421	7930
55	7303	7113	7512
65	7054	6744	6821
75	6770	6277	5465
85	6665	5974	2510

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L021508901.IES

CANDELA TABULATION

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
0	675.94	675.94	675.94	675.94	675.94	675.94	675.94	675.94	675.94	675.94
5	684.17	684.12	684.00	683.83	682.99	682.35	681.85	681.13	680.33	679.82
10	697.06	696.85	696.18	695.29	694.66	694.37	694.03	692.47	689.69	687.12
15	707.77	707.39	706.76	706.51	706.84	703.72	700.69	698.71	696.26	692.43
20	714.34	713.80	713.46	714.47	710.93	708.91	706.59	701.83	690.53	682.94
25	716.03	715.27	716.58	714.05	712.62	709.75	699.55	690.83	683.49	676.03
30	712.15	711.65	713.04	709.88	708.74	697.65	689.94	682.73	673.21	664.06
35	702.96	702.67	702.92	701.95	693.48	685.05	677.68	668.57	661.28	645.43
40	688.72	688.13	688.00	686.57	675.48	668.19	659.17	651.63	635.57	622.46
45	668.82	667.94	667.18	665.37	653.86	645.56	637.04	622.92	609.77	595.78
50	643.62	642.56	641.47	638.35	627.14	618.12	609.01	593.59	578.88	563.20
55	613.36	612.34	610.87	606.19	595.69	585.49	575.76	559.24	543.09	525.81
60	578.54	577.32	575.38	569.69	559.40	548.57	537.66	520.37	503.47	484.97
65	539.26	537.99	535.76	528.80	518.86	507.48	495.46	477.68	459.72	440.42
70	496.52	495.30	492.39	485.10	475.06	462.80	448.47	431.78	413.06	392.62
75	450.83	449.65	446.19	438.77	428.36	415.97	401.01	383.68	364.38	343.43
80	405.22	404.08	399.87	392.45	382.42	369.35	354.01	337.53	317.97	296.31
85	364.59	363.50	359.20	351.78	341.41	329.65	314.35	296.14	275.61	253.61
90	341.58	340.48	336.31	329.61	319.20	306.26	291.04	272.79	252.31	230.39
95	334.75	333.40	328.89	321.73	311.53	298.54	283.16	265.37	245.65	223.64
100	325.06	324.13	319.70	312.62	302.51	289.69	274.81	257.24	237.60	216.23
105	313.25	312.37	308.24	301.20	291.63	279.11	264.40	247.33	228.20	207.42
110	299.34	298.50	294.54	287.80	278.52	266.47	252.56	235.83	217.41	196.96
115	283.33	282.53	278.86	272.41	263.56	251.97	238.69	222.76	204.76	185.67
120	265.20	264.49	261.07	255.21	246.57	235.70	223.14	208.09	191.10	172.81
125	245.31	244.55	241.43	235.87	227.77	217.79	205.90	191.91	175.89	158.95
130	223.81	222.97	220.15	214.92	207.59	198.27	187.31	174.33	159.66	143.48
135	200.71	199.87	197.39	192.62	185.92	177.49	167.50	155.40	139.56	122.99
140	176.18	175.51	173.28	169.06	162.99	155.45	145.71	131.42	116.92	103.01
145	150.89	150.18	148.24	144.57	139.13	131.21	119.24	107.52	95.68	84.38
150	124.42	123.83	122.19	119.16	113.47	103.27	94.08	85.02	76.33	68.70
155	97.79	97.28	95.93	93.23	84.72	77.43	70.85	65.37	59.85	53.66
160	71.65	71.19	69.97	64.57	58.88	54.29	51.30	47.88	43.50	38.15
165	46.53	46.20	43.20	39.24	36.33	35.07	33.38	30.85	27.36	24.28
170	23.35	22.76	19.81	18.84	18.76	18.29	17.53	16.35	15.01	13.78
175	8.85	7.88	7.84	8.09	8.22	8.14	8.09	7.88	7.63	7.38
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. Angles **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>
0	675.94	675.94	675.94	675.94	675.94	675.94	675.94	675.94	675.94
5	679.36	678.73	678.43	677.89	677.30	676.87	676.54	676.58	676.41
10	684.46	682.40	680.50	678.56	676.37	674.30	672.62	671.56	671.18
15	687.96	680.50	672.53	666.13	661.15	656.22	652.60	649.90	648.59
20	675.78	668.82	661.70	654.62	647.58	640.88	634.94	630.64	629.03
25	667.01	657.32	648.42	640.92	633.08	624.19	614.96	608.09	605.18
30	656.81	642.48	628.49	616.10	604.38	592.91	582.59	574.79	571.12
35	632.03	618.54	604.71	590.05	575.80	562.35	550.85	542.00	537.66
40	607.71	594.43	577.74	558.90	542.67	526.49	512.07	500.31	494.83
45	578.54	561.22	543.13	523.83	506.04	487.29	470.09	456.48	450.07
50	544.74	526.36	506.09	484.80	464.44	443.79	424.82	409.52	402.10
55	506.80	486.32	464.91	441.85	419.60	396.96	375.97	358.94	350.51
60	464.65	442.78	419.89	395.28	371.12	346.72	324.34	305.67	296.31

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CANDELA TABULATION - (Cont.)

65	418.58	395.65	371.38	345.50	320.21	293.99	269.84	249.78	239.75
70	369.94	346.13	320.76	293.44	266.64	239.07	213.44	192.20	181.41
75	319.95	294.62	268.66	240.25	212.39	183.56	156.92	134.67	123.33
80	271.86	246.11	218.97	189.67	160.97	131.13	102.68	81.81	68.62
85	229.04	203.50	175.47	146.22	117.01	87.59	58.59	35.11	23.35
90	206.15	179.85	152.79	123.58	94.29	63.69	36.00	12.98	1.35
95	199.24	173.53	146.47	117.22	88.51	59.52	31.65	10.62	0.00
100	192.33	167.16	140.53	111.91	83.92	55.93	29.72	9.78	0.00
105	183.81	159.66	133.82	106.13	79.20	52.39	27.52	9.27	0.00
110	174.50	150.94	125.98	99.81	74.10	49.06	25.54	8.39	0.00
115	164.13	141.54	117.85	93.36	69.00	45.18	23.77	7.71	0.00
120	152.50	131.17	108.91	85.94	62.89	40.89	21.16	6.79	0.00
125	140.27	120.00	98.63	76.75	55.43	35.70	18.08	6.07	0.00
130	124.09	104.53	85.44	66.01	47.84	30.05	15.43	5.52	0.00
135	105.88	89.10	72.67	55.93	40.25	24.87	12.65	5.23	0.00
140	88.89	74.60	60.99	46.53	32.83	20.53	10.50	5.06	0.00
145	73.42	62.55	49.91	37.22	26.51	16.27	9.02	4.93	0.00
150	60.06	49.91	39.28	29.67	20.82	13.02	7.88	0.00	0.00
155	45.77	37.72	30.10	22.80	16.14	10.66	7.12	0.00	0.00
160	32.12	26.72	21.58	16.40	12.18	8.85	6.49	0.00	0.00
165	20.91	17.41	14.33	11.68	9.36	7.46	6.11	0.00	0.00
170	12.39	11.00	9.74	8.56	7.59	6.83	6.28	0.00	0.00
175	7.12	6.87	6.66	6.45	6.24	6.15	6.03	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	258.80	N.A.	6.90
0-30	568.19	N.A.	15.10
0-40	966.04	N.A.	25.70
0-60	1868.86	N.A.	49.70
0-80	2623.65	N.A.	69.80
0-90	2879.33	N.A.	76.60
10-90	2814.25	N.A.	74.80
20-40	707.24	N.A.	18.80
20-50	1155.56	N.A.	30.70
40-70	1318.35	N.A.	35.10
60-80	754.78	N.A.	20.10
70-80	339.26	N.A.	9.00
80-90	255.68	N.A.	6.80
90-110	415.05	N.A.	11.00
90-120	580.57	N.A.	15.40
90-130	708.70	N.A.	18.80
90-150	848.66	N.A.	22.60
90-180	880.60	N.A.	23.40
110-180	465.56	N.A.	12.40
0-180	3759.93	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	65.08
10-20	193.73
20-30	309.38
30-40	397.86
40-50	448.32
50-60	454.51
60-70	415.52
70-80	339.26
80-90	255.68
90-100	218.52
100-110	196.52
110-120	165.52
120-130	128.13
130-140	88.16
140-150	51.80
150-160	24.00
160-170	7.15
170-180	0.79

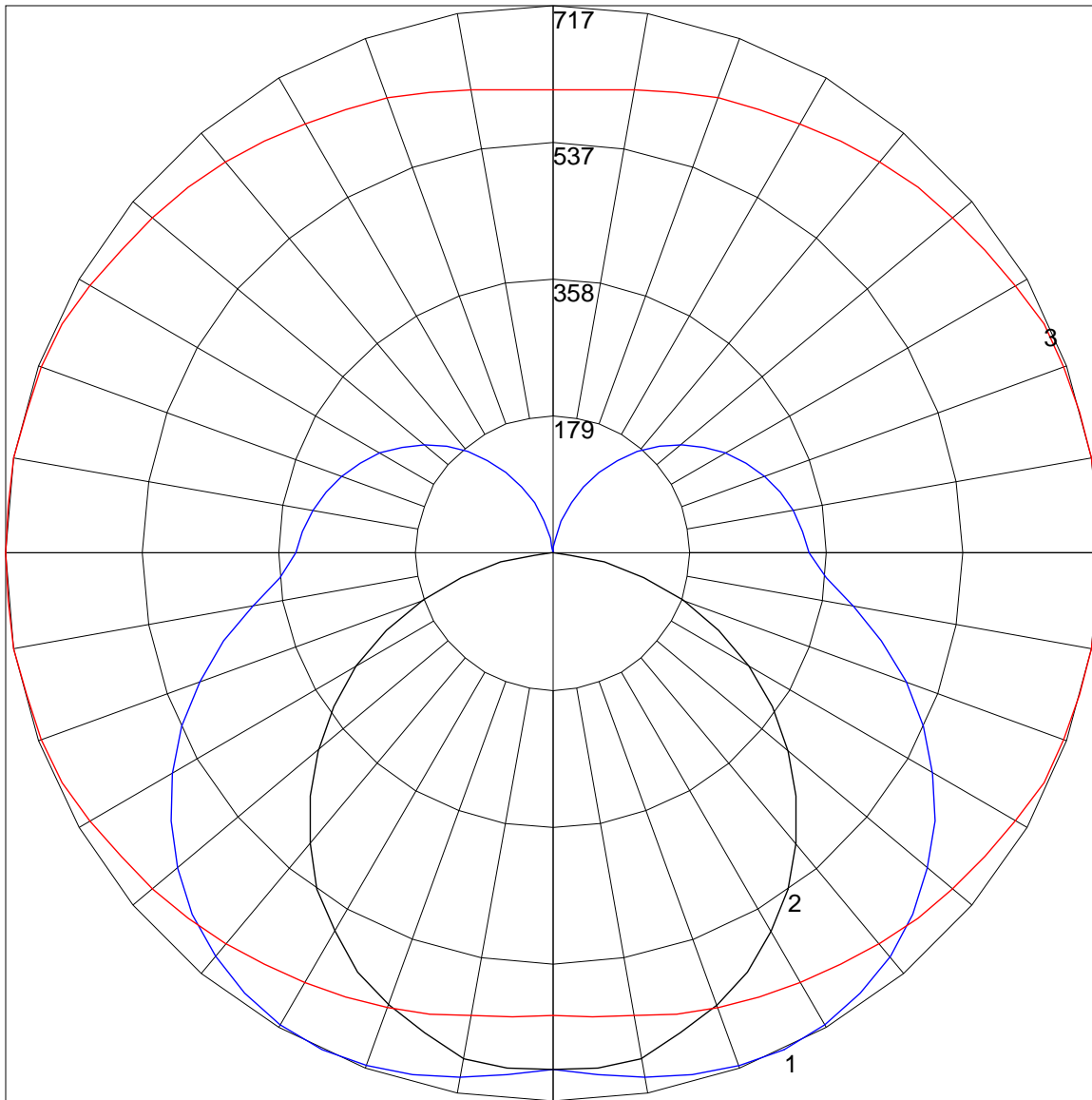
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	113	113	113	113	108	108	108	108	98	98	98	89	89	89	81	81	81	77
1	101	95	89	85	95	90	85	81	81	78	74	74	71	68	66	64	62	58
2	90	81	73	67	85	77	70	64	70	64	59	63	58	54	56	53	50	46
3	82	70	61	54	77	67	59	52	60	54	48	54	49	44	49	44	41	37
4	74	61	52	45	70	58	50	43	53	46	40	48	42	37	43	38	34	31
5	68	54	45	38	64	52	43	37	47	40	34	43	36	32	38	33	29	26
6	62	49	39	33	59	46	38	32	42	35	29	38	32	27	35	29	25	23
7	58	44	35	28	54	42	33	27	38	31	26	35	29	24	31	26	22	20
8	53	40	31	25	51	38	30	24	35	28	23	32	26	21	29	24	20	17
9	50	36	28	22	47	35	27	22	32	25	20	29	23	19	26	21	18	16
10	47	33	25	20	44	32	24	19	29	23	18	27	21	17	24	19	16	14

POLAR GRAPH



Maximum Candela = 716.58 Located At Horizontal Angle = 10, Vertical Angle = 25
1 - Vertical Plane Through Horizontal Angles (10 - 190) (Through Max. Cd.)
2 - Vertical Plane Through Horizontal Angles (90 - 270)
3 - Horizontal Cone Through Vertical Angle (25) (Through Max. Cd.)