



Lighting Sciences, Inc.  
UL Verification Services  
7826 E. Evans Rd.  
Scottsdale, Arizona 85260 USA  
P: 480-991-9260 F: 480-991-0375  
[lsi@ul.com](mailto:lsi@ul.com)



[www.lightingsciences.com](http://www.lightingsciences.com)

## INDEPENDENT TEST LABORATORY REPORT No. 31680

### Description:

PRUDENTIAL LIGHTING - LED LUMINAIRE, CAT# BIO-PSTD-REG3-LED35HO-04-AWW-D1G  
WITH WHITE INTERIOR AND LINEAR PRISMATIC PLASTIC FLAT LENS  
128 LEDS. LUMINAIRE OUTPUT = 2984 LMS  
ONE EPTRONICS LD50W-29-C1750-RD DRIVER OPERATING AT 120 VAC AND 50.8 WATTS

### The sample(s) was(were) tested in accordance with the following applied standards/regulations:

IES LM-41-98: Approved Method for Photometric Testing of Indoor Fluorescent Luminaire (withdrawn)

IES LM-79-08: Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

### Prepared for:

PRUDENTIAL LIGHTING  
  
LOS ANGELES, CA

### Approved by:

JIM DOMIGAN

VS SUPERVISOR

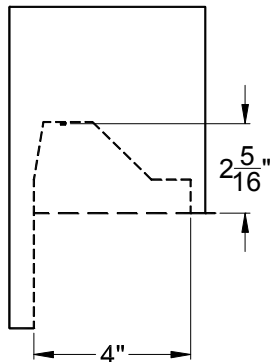
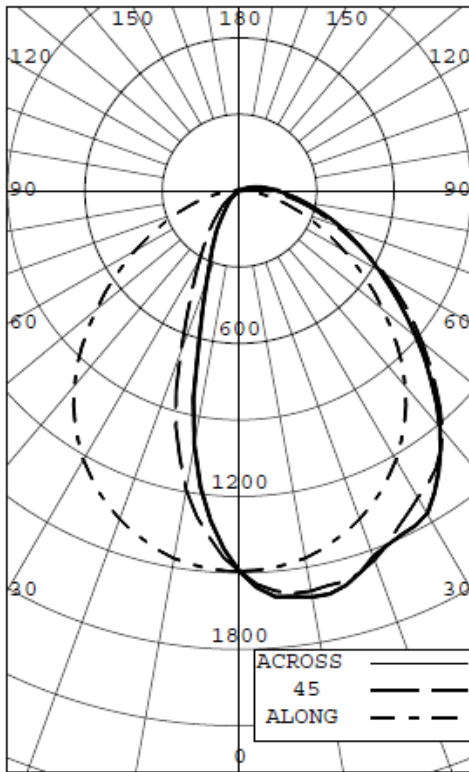
APR 5, 2013

*This report shall not be reproduced except in full without the written approval of the laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products.*

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ANGLE	INTENSITY (CANDLEPOWER) SUMMARY				OUTPUT LUMENS
	BEAM	SIDE	22.5	ACROSS	
0	1494	1494	1494	1494	
5	1487	1534	1576	1594	76
15	1423	1533	1587	1605	219
25	1301	1425	1457	1476	332
35	1115	1242	1330	1353	401
45	867	1029	1073	1062	397
55	595	756	784	764	333
65	353	496	510	519	244
75	175	284	309	335	156
85	51	116	162	187	82
90	10	66	114	142	
95	16	42	82	107	41
105	12	14	35	52	18
115	8	10	8	13	6
125	5	6	5	1	2
135	3	4	3	0	1
145	1	2	1	0	0
155	0	1	0	0	0
165	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0

BOTH SIDES  
ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	965	32.36
0-40	1489	49.92
0-60	2373	79.52
0-90	2910	97.52
40-90	1420	47.60
60-90	537	17.99
90-180	74	2.48
0-180	2984	100.00

EFFICACY (LUMENS PER WATT): 58.7

\*\*\* THIS IS AN ABSOLUTE TEST \*\*\*

LUMINOUS LENGTH: 4.000 INS  
WIDTH: 48.000 INS

LUMINANCE SUMMARY - CD./SQ.M.

ANGLE	BEAM SIDE		
	ALONG	45	ACROSS
45	9746	12165	12047
55	8191	10909	10627
65	6524	9555	9882
75	5157	9273	10420
85	4008	13378	17917

TESTED IN ACCORDANCE WITH IES PROCEDURES.

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BEAM SIDE  
INTENSITY(CANDLEPOWER) DATA

ANGLE	PLANE						OUTPUT LUMENS
	ALONG	67.5	45	22.5	ACROSS	AVERAGE	
0	1494	1494	1494	1494	1494	1494	
5	1487	1534	1576	1594	1600	1562	76
10	1465	1550	1596	1611	1619	1575	
15	1423	1533	1587	1605	1603	1559	219
20	1369	1484	1541	1530	1525	1500	
25	1301	1425	1457	1476	1490	1438	332
30	1217	1346	1389	1449	1460	1380	
35	1115	1242	1330	1353	1347	1289	401
40	999	1139	1224	1216	1209	1171	
45	867	1029	1073	1062	1051	1031	397
50	727	901	925	913	897	888	
55	595	756	784	764	752	745	333
60	467	619	647	630	626	610	
65	353	496	510	519	515	490	244
70	257	390	399	422	422	388	
75	175	284	309	335	333	295	156
80	106	183	231	256	258	213	
85	51	116	162	187	193	147	82
90	10	66	114	142	150	100	
95	16	42	82	107	114	74	41
100	14	23	56	77	83	51	
105	12	14	35	52	56	34	18
110	10	12	17	31	34	20	
115	8	10	8	13	16	10	6
120	6	8	6	1	1	5	
125	5	6	5	1	0	3	2
130	4	5	3	0	0	3	
135	3	4	3	0	0	2	1
140	2	3	2	0	0	1	
145	1	2	1	0	0	1	0
150	1	1	0	0	0	1	
155	0	1	0	0	0	0	0
160	0	0	0	0	0	0	
165	0	0	0	0	0	0	0
170	0	0	0	0	0	0	
175	0	0	0	0	0	0	0
180	0	0	0	0	0	0	

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BEAM SIDE  
AVERAGE LUMINANCE DATA

CD./SQ.M (FOOTLAMBERTS)

ANGLE	ALONG	67.5	45	22.5	ACROSS
0	12060( 3520)	12060( 3520)	12060( 3520)	12060( 3520)	12060( 3520)
30	10236( 2987)	11431( 3336)	12053( 3518)	12996( 3793)	13606( 3971)
40	9096( 2655)	10503( 3065)	11618( 3391)	12114( 3535)	12742( 3718)
45	8335( 2432)	10025( 2925)	10855( 3168)	11348( 3312)	12047( 3516)
50	7462( 2178)	9411( 2747)	10031( 2927)	10591( 3091)	11261( 3286)
55	6605( 1927)	8540( 2492)	9312( 2717)	9785( 2855)	10627( 3101)
60	5691( 1661)	7701( 2247)	8497( 2480)	9063( 2645)	10113( 2951)
65	4809( 1403)	6918( 2019)	7610( 2221)	8607( 2512)	9882( 2884)
70	4003( 1168)	6250( 1824)	6924( 2021)	8331( 2431)	9948( 2903)
75	3211( 937)	5398( 1575)	6457( 1884)	8254( 2409)	10420( 3041)
80	2388( 697)	4304( 1256)	6138( 1791)	8451( 2466)	11994( 3500)
85	1502( 438)	3603( 1051)	5982( 1746)	9514( 2777)	17917( 5229)

LUMINOUS LENGTH: 4.000 INS  
WIDTH: 48.000 INS

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OPPOSITE SIDE TO BEAM  
INTENSITY(CANDLEPOWER) DATA

ANGLE	PLANE						OUTPUT LUMENS
	ALONG	112.5	135	157.5	ACROSS	AVERAGE	
0	1494	1494	1494	1494	1494	1494	
5	1487	1421	1366	1315	1300	1374	64
10	1465	1326	1194	1061	1015	1205	
15	1423	1221	959	706	618	977	135
20	1369	1082	669	431	376	764	
25	1301	929	446	286	256	610	140
30	1217	760	309	204	179	493	
35	1115	589	224	140	117	392	123
40	999	441	162	95	79	309	
45	867	329	114	66	55	242	94
50	727	234	79	44	31	184	
55	595	166	52	12	0	132	60
60	467	114	29	2	0	95	
65	353	73	10	2	0	65	33
70	257	43	9	1	0	45	
75	175	20	7	1	0	29	16
80	106	15	6	1	0	19	
85	51	10	4	0	0	10	6
90	10	8	4	0	0	4	
95	16	7	4	0	0	5	3
100	14	6	3	0	0	4	
105	12	6	3	0	0	4	2
110	10	5	2	0	0	3	
115	8	4	2	0	0	2	1
120	6	4	1	0	0	2	
125	5	3	1	0	0	2	1
130	4	2	1	0	0	1	
135	3	2	0	0	0	1	0
140	2	1	0	0	0	1	
145	1	1	0	0	0	0	0
150	1	0	0	0	0	0	
155	0	0	0	0	0	0	0
160	0	0	0	0	0	0	
165	0	0	0	0	0	0	0
170	0	0	0	0	0	0	
175	0	0	0	0	0	0	0
180	0	0	0	0	0	0	

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OPPOSITE SIDE TO BEAM  
AVERAGE LUMINANCE DATA

CD./SQ.M (FOOTLAMBERTS)

ANGLE	ALONG	112.5	135	157.5	ACROSS
0	12060( 3520)	12060( 3520)	12060( 3520)	12060( 3520)	12060( 3520)
30	10236( 2987)	6460( 1885)	2677( 781)	1831( 534)	1669( 487)
40	9096( 2655)	4062( 1185)	1539( 449)	946( 276)	834( 243)
45	8335( 2432)	3207( 936)	1148( 335)	699( 204)	624( 182)
50	7462( 2178)	2444( 713)	852( 248)	511( 149)	385( 112)
55	6605( 1927)	1875( 547)	614( 179)	147( 42)	0( 0)
60	5691( 1661)	1420( 414)	377( 110)	31( 9)	0( 0)
65	4809( 1403)	1021( 298)	153( 44)	29( 8)	0( 0)
70	4003( 1168)	686( 200)	156( 45)	23( 6)	0( 0)
75	3211( 937)	379( 110)	152( 44)	24( 7)	0( 0)
80	2388( 697)	347( 101)	156( 45)	16( 4)	0( 0)
85	1502( 438)	314( 91)	162( 47)	10( 2)	0( 0)

LUMINOUS LENGTH: 4.000 INS  
WIDTH: 48.000 INS

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COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

CC WALL	90				80				70				50				30				10				0
	70	50	30	10	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																									
0	1.221	.221	.221	.22	1.181	.181	.181	.18	1.151	.151	.151	.15	1.101	.101	.10	1.051	.051	.05	1.001	.001	.00	0.98			
1	1.121	.071	.030	.99	1.091	.051	.010	.97	1.061	.020	.990	.95	0.980	.950	.92	0.930	.910	.89	0.890	.870	.86	0.84			
2	1.030	.960	.890	.83	1.010	.940	.880	.82	0.980	.910	.860	.81	0.870	.830	.79	0.840	.800	.77	0.810	.780	.75	0.73			
3	0.950	.850	.780	.71	0.930	.840	.760	.71	0.900	.820	.750	.70	0.790	.730	.68	0.760	.710	.67	0.730	.690	.66	0.63			
4	0.890	.770	.690	.63	0.860	.760	.680	.62	0.840	.740	.670	.61	0.720	.650	.60	0.690	.640	.59	0.670	.620	.58	0.56			
5	0.820	.700	.610	.55	0.800	.690	.600	.54	0.780	.670	.600	.54	0.650	.580	.53	0.630	.570	.52	0.610	.560	.52	0.50			
6	0.760	.630	.550	.49	0.740	.620	.540	.48	0.720	.610	.530	.48	0.590	.520	.47	0.570	.510	.47	0.560	.500	.46	0.44			
7	0.700	.570	.490	.43	0.690	.560	.480	.43	0.670	.550	.480	.42	0.540	.470	.42	0.520	.460	.41	0.510	.450	.41	0.39			
8	0.660	.520	.440	.38	0.640	.510	.440	.38	0.630	.510	.430	.38	0.490	.420	.38	0.480	.420	.37	0.460	.410	.37	0.35			
9	0.610	.480	.400	.34	0.600	.470	.390	.34	0.580	.460	.390	.34	0.450	.380	.34	0.440	.380	.33	0.430	.370	.33	0.31			
10	0.570	.440	.360	.31	0.560	.430	.360	.31	0.550	.430	.360	.31	0.410	.350	.30	0.400	.340	.30	0.390	.340	.30	0.28			

THE ABOVE COEFFICIENTS HAVE BEEN CALCULATED BASED ON LUMINAIRE LUMENS  
BECAUSE IN AN ABSOLUTE TEST THE BARE LAMP LUMENS ARE UNKNOWN.  
LIGHTING DESIGN CALCULATIONS MADE USING THESE COEFFICIENTS SHOULD  
THEREFORE USE THE LUMINAIRE LUMENS IN THE CALCULATION FORMULA

LUMINAIRE INPUT WATTS 50.8

LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.  
BALLAST AND FIELD FACTORS HAVE NOT BEEN APPLIED.

TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST  
LUMINOUS OPENING OF LUMINAIRE.

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**ELECTRICAL MEASUREMENTS**

INPUT VOLTAGE:	120.0	VOLTS AC
INPUT CURRENT:	0.426	AMPS
INPUT POWER:	50.8	WATTS
POWER FACTOR:	99.4	PERCENT
TOTAL HARMONIC DISTORTION:	6.56	PERCENT
OFF STATE POWER:	0.00	WATTS
INPUT VOLTAGE:	277.0	VOLTS AC
INPUT CURRENT:	0.195	AMPS
INPUT POWER:	49.7	WATTS
POWER FACTOR:	91.9	PERCENT
TOTAL HARMONIC DISTORTION:	15.44	PERCENT

**LIGHT OUTPUT**

LUMENS:	2984	lm
EFFICACY:	58.7	lm/W

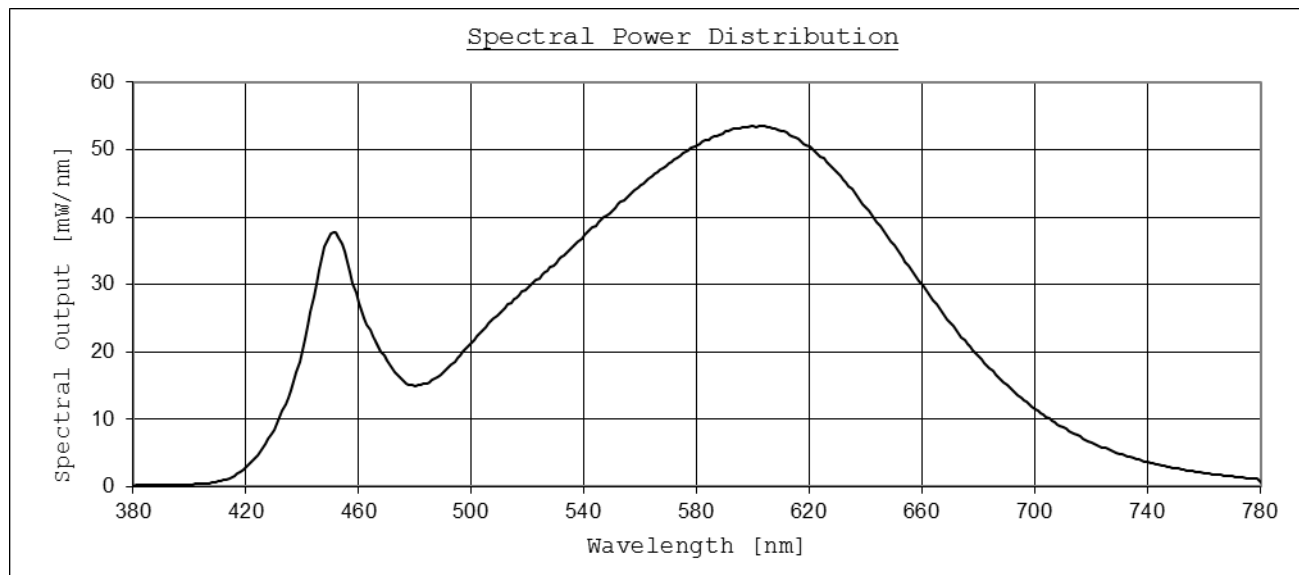
**SPECTRAL MEASUREMENTS**

X:	0.4093	
y:	0.3922	
u/u':	0.2377	
v:	0.3416	
v':	0.5125	
Duv:	0.0006	
CRI (R <sub>a</sub> ):	84.3	
CRI (R <sub>g</sub> ):	23.1	
CCT:	3424	K
RADIANT FLUX:	9444	mW

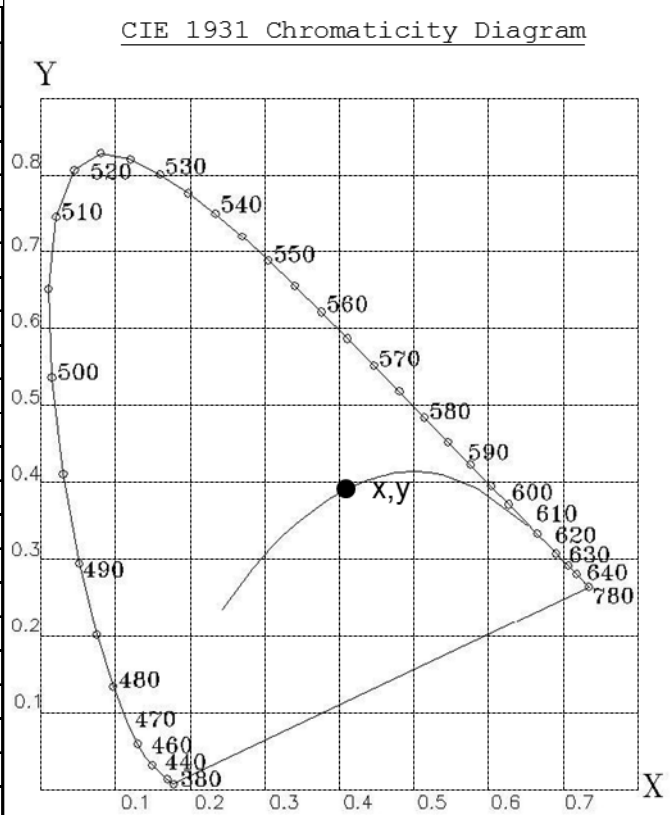
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Tabulated Spectral Power Distribution			
Wavelength [nm]	[mW/nm]	Wavelength [nm]	[mW/nm]
380	0.13688	590	52.65566
390	0.28979	600	53.46786
400	0.34061	610	52.82181
410	0.76829	620	50.41922
420	2.88931	630	46.53931
430	8.54141	640	41.42508
440	20.15916	650	35.77605
450	37.59327	660	29.91606
460	27.33093	670	24.27309
470	18.72264	680	19.33742
480	15.00032	690	15.09768
490	16.94297	700	11.58356
500	21.38599	710	8.78941
510	25.80204	720	6.60400
520	29.58342	730	4.92600
530	33.17987	740	3.66679
540	37.27343	750	2.72701
550	41.04565	760	2.04572
560	44.69331	770	1.52551
570	47.94621	780	0.56951
580	50.67786		



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LUMINOUS OPENING

SIDE VIEW



**All testing was conducted in accordance with LM-79-08,**

Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products as published by the Illuminating Engineering Society of North America (IESNA).

The condition of the item tested was new. Stabilization time before testing meets the stabilization requirements of LM-79-08.

The test results (luminous distribution and flux) were obtained by using a Lighting Sciences series 6000 Type C Moving Mirror Goniophotometer

- The photometric reference standard used is a set of three incandescent luminous intensity standard lamps calibrated and traceable to the U.S. National Institute of Standards and Technology.

The test results (colorimetric and luminous flux) were obtained by using a Labsphere Model LMS-760 Integrating Sphere.  $4\pi$  geometry was used. Correction factors were applied for self-absorption.

- The colorimetric & photometric reference standard used is an incandescent spectral flux standard lamp calibrated and traceable to the U.S. National Institute of Standards and Technology.

Power measurements were obtained with a Yokogawa WT210 power analyzer.

Ambient temperature during testing was  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , measured using an Omega model DP460.

Calibration certificates are on file at the laboratories of Lighting Sciences Inc.

The results in this report apply to the test sample(s) mentioned in this report at the time of the testing period only and are not to be used to indicate applicability to other similar products.