



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. 32216

### Description:

PRUDENTIAL LIGHTING - 4' LED WALL WASH, CAT# BIO-STD-FLSH-LED3SO-04-AWW-D1W  
WITH WHITE INTERIOR AND PRISMATIC PLASTIC FLAT LENS  
128 LEDS. LUMINAIRE OUTPUT = 3184 LMS  
ONE EPTRONICS LD50W-36-C1400-RD DRIVER OPERATING AT 120 VAC AND 39.0 WATT

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IES LM-41-98: Approved Method for Photometric Testing of Indoor Fluorescent Luminaire (withdrawn)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

LABORATORY TEAM LEADER

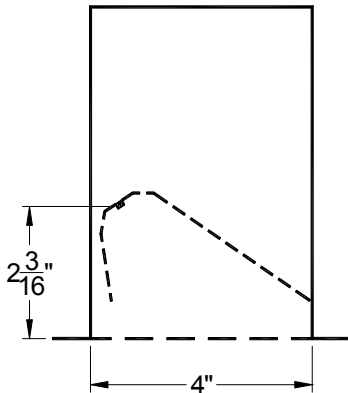
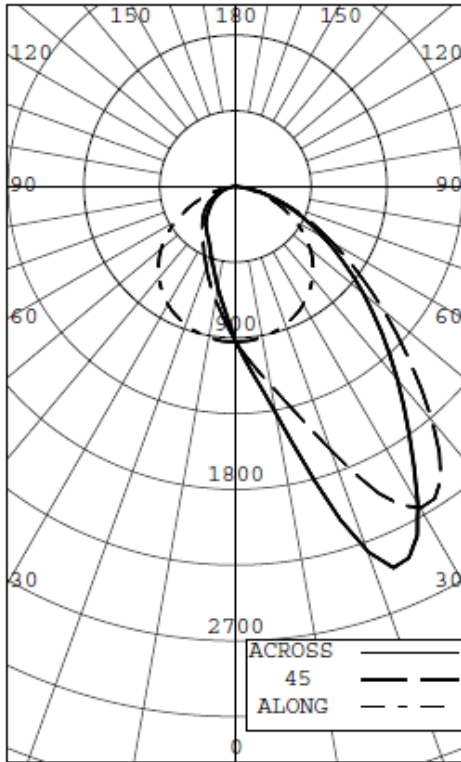
SEP 30, 2013

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INTENSITY (CANDLEPOWER)				SUMMARY		OUTPUT LUMENS
ANGLE	ALONG	BEAM	SIDE	22.5	ACROSS	
0	923	923	923	923	923	53
5	921	987	1051	1091	1103	
10	911	1052	1197	1314	1361	
15	895	1116	1395	1684	1806	202
20	874	1180	1676	2160	2315	416
25	844	1249	2012	2424	2434	
30	808	1327	2205	2257	2163	
35	764	1401	2127	1887	1799	520
40	712	1444	1815	1553	1494	489
45	650	1409	1460	1271	1227	
50	579	1286	1152	1022	993	
55	499	1075	884	804	784	381
60	410	834	666	619	602	240
65	317	602	488	461	450	
70	228	401	337	321	312	
75	145	245	213	203	195	112
80	77	126	111	105	100	22
85	25	40	34	31	29	
90	0	0	0	0	0	

BOTH SIDES  
ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	913	28.69
0-40	1562	49.07
0-60	2674	83.98
0-90	3184	100.00
40-90	1621	50.93
60-90	510	16.02
90-180	0	0.00
0-180	3184	100.00

EFFICACY (LUMENS PER WATT): 81.6

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

LUMINOUS LENGTH: 4.000 INS  
WIDTH: 48.000 INS

LUMINANCE SUMMARY - CD./SQ.M.

		BEAM SIDE		
ANGLE	ALONG	45	ACROSS	
45	7420	16733	14066	
55	7023	12482	11076	
65	6055	9354	8626	
75	4522	6636	6114	
85	2315	3176	2696	

TESTED IN ACCORDANCE WITH IES PROCEDURES.

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BEAM SIDE  
INTENSITY(CANDLEPOWER) DATA  
IN 2.5 DEGREE STEPS

ANGLE	PLANE						OUTPUT
	ALONG	67.5	45	22.5	ACROSS	AVERAGE	LUMENS
0.0	923	923	923	923	923	923	
2.5	923	954	984	1001	1005	976	
5.0	921	987	1051	1091	1103	1035	53
7.5	917	1020	1120	1190	1216	1099	
10.0	911	1052	1197	1314	1361	1175	
12.5	904	1084	1288	1476	1556	1270	
15.0	895	1116	1395	1684	1806	1386	202
17.5	886	1146	1525	1923	2080	1519	
20.0	874	1180	1676	2160	2315	1653	
22.5	860	1212	1844	2343	2453	1764	
25.0	844	1249	2012	2424	2434	1831	416
27.5	828	1288	2138	2391	2339	1850	
30.0	808	1327	2205	2257	2163	1818	
32.5	787	1365	2200	2074	1973	1755	
35.0	764	1401	2127	1887	1799	1674	520
37.5	739	1429	1989	1713	1640	1580	
40.0	712	1444	1815	1553	1494	1479	
42.5	682	1439	1634	1408	1357	1375	
45.0	650	1409	1460	1271	1227	1270	489
47.5	616	1361	1300	1143	1106	1166	
50.0	579	1286	1152	1022	993	1061	
52.5	541	1189	1013	910	885	956	
55.0	499	1075	884	804	784	851	381
57.5	456	955	768	707	689	751	
60.0	410	834	666	619	602	656	
62.5	363	715	573	537	524	567	
65.0	317	602	488	461	450	484	240
67.5	272	496	409	388	379	405	
70.0	228	401	337	321	312	332	
72.5	185	318	271	259	251	267	
75.0	145	245	213	203	195	208	112
77.5	109	182	159	151	145	155	
80.0	77	126	111	105	100	108	
82.5	48	78	69	64	61	66	
85.0	25	40	34	31	29	33	22
87.5	8	14	11	9	8	11	
90.0	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	7449( 2174)	7449( 2174)	7449( 2174)	7449( 2174)	7449( 2174)
30	7531( 2198)	12406( 3621)	20603( 6013)	21089( 6155)	20161( 5884)
40	7503( 2189)	15256( 4452)	19144( 5587)	16414( 4790)	15743( 4594)
45	7420( 2165)	16109( 4701)	16733( 4883)	14547( 4246)	14066( 4105)
50	7271( 2122)	16215( 4732)	14464( 4221)	12872( 3756)	12465( 3638)
55	7023( 2049)	15160( 4424)	12482( 3643)	11350( 3312)	11076( 3232)
60	6619( 1932)	13508( 3942)	10762( 3141)	10013( 2922)	9723( 2837)
65	6055( 1767)	11514( 3360)	9354( 2730)	8832( 2577)	8626( 2517)
70	5381( 1570)	9498( 2772)	7965( 2324)	7588( 2214)	7357( 2147)
75	4522( 1320)	7680( 2241)	6636( 1936)	6341( 1850)	6114( 1784)
80	3579( 1044)	5889( 1718)	5166( 1507)	4883( 1425)	4667( 1362)
85	2315( 675)	3718( 1085)	3176( 926)	2891( 843)	2696( 787)

LUMINOUS LENGTH: 4.000 INS  
WIDTH: 48.000 INS

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OPPOSITE SIDE TO BEAM  
INTENSITY(CANDLEPOWER) DATA  
IN 2.5 DEGREE STEPS

ANGLE	PLANE						OUTPUT LUMENS
	ALONG	112.5	135	157.5	ACROSS	AVERAGE	
0.0	923	923	923	923	923	923	
2.5	923	882	855	832	823	861	
5.0	921	846	794	756	742	807	38
7.5	917	811	737	689	673	758	
10.0	911	777	686	631	613	714	
12.5	904	742	639	580	559	673	
15.0	895	708	594	532	510	634	89
17.5	886	675	552	488	467	598	
20.0	874	640	512	449	430	563	
22.5	860	608	477	416	400	533	
25.0	844	576	445	389	375	505	116
27.5	828	546	416	366	355	480	
30.0	808	515	390	347	338	456	
32.5	787	486	366	331	323	434	
35.0	764	457	346	316	308	414	129
37.5	739	430	328	302	293	394	
40.0	712	405	311	288	276	374	
42.5	682	381	295	272	259	355	
45.0	650	358	280	256	241	335	129
47.5	616	335	265	239	223	315	
50.0	579	313	251	222	206	294	
52.5	541	291	235	205	190	274	
55.0	499	269	219	188	175	253	113
57.5	456	247	202	172	161	232	
60.0	410	224	184	156	146	210	
62.5	363	201	165	140	131	188	
65.0	317	178	148	124	117	167	82
67.5	272	156	130	109	102	145	
70.0	228	133	112	94	88	124	
72.5	185	111	93	79	74	103	
75.0	145	89	75	64	60	82	44
77.5	109	67	57	49	47	63	
80.0	77	47	41	35	34	45	
82.5	48	30	26	23	22	29	
85.0	25	16	14	13	12	15	10
87.5	8	5	5	5	5	5	
90.0	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	7449( 2174)	7449( 2174)	7449( 2174)	7449( 2174)	7449( 2174)
30	7531( 2198)	4816( 1405)	3641( 1062)	3244( 946)	3150( 919)
40	7503( 2189)	4280( 1249)	3281( 957)	3039( 886)	2910( 849)
45	7420( 2165)	4088( 1193)	3211( 937)	2930( 855)	2756( 804)
50	7271( 2122)	3939( 1149)	3146( 918)	2793( 815)	2584( 754)
55	7023( 2049)	3792( 1107)	3087( 901)	2653( 774)	2476( 722)
60	6619( 1932)	3634( 1060)	2969( 866)	2526( 737)	2355( 687)
65	6055( 1767)	3403( 993)	2831( 826)	2381( 695)	2235( 652)
70	5381( 1570)	3159( 922)	2644( 771)	2214( 646)	2081( 607)
75	4522( 1320)	2777( 810)	2335( 681)	1993( 581)	1884( 550)
80	3579( 1044)	2207( 644)	1908( 557)	1638( 478)	1566( 457)
85	2315( 675)	1450( 423)	1327( 387)	1189( 347)	1143( 333)

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	1.191	.191	.191	.19	1.161	.161	.161	.16	1.111	.111	.11	1.061	.061	.06	1.021	.021	.02	1.00			
1	1.131	.081	.041	.01	1.101	.061	.030	.99	1.081	.041	.010	.98	1.000	.970	.95	0.960	.940	.92	0.920	.910	.89	0.87			
2	1.040	.970	.910	.85	1.020	.950	.890	.84	1.000	.930	.870	.83	0.890	.850	.81	0.860	.830	.79	0.830	.800	.78	0.76			
3	0.960	.860	.780	.72	0.940	.840	.770	.71	0.910	.830	.760	.71	0.800	.740	.70	0.770	.730	.68	0.750	.710	.67	0.65			
4	0.890	.770	.690	.62	0.870	.760	.680	.62	0.850	.750	.670	.61	0.720	.660	.61	0.700	.640	.60	0.680	.630	.59	0.57			
5	0.820	.690	.600	.54	0.800	.680	.600	.54	0.780	.670	.590	.53	0.650	.580	.53	0.630	.570	.52	0.610	.560	.52	0.50			
6	0.760	.620	.530	.47	0.740	.610	.530	.47	0.720	.600	.520	.46	0.580	.510	.46	0.570	.500	.46	0.550	.500	.45	0.43			
7	0.690	.550	.470	.41	0.670	.550	.460	.41	0.660	.540	.460	.40	0.520	.450	.40	0.510	.440	.39	0.500	.440	.39	0.37			
8	0.640	.500	.420	.36	0.630	.490	.410	.36	0.610	.490	.410	.35	0.470	.400	.35	0.460	.400	.35	0.450	.390	.35	0.33			
9	0.590	.460	.370	.31	0.580	.450	.370	.31	0.560	.440	.360	.31	0.430	.360	.31	0.420	.350	.31	0.410	.350	.30	0.29			
10	0.550	.410	.330	.27	0.530	.410	.330	.27	0.520	.400	.330	.27	0.390	.320	.27	0.380	.310	.27	0.370	.310	.27	0.25			

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 39.0

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:	0.326	AMPS
INPUT POWER:	39.0	WATTS
POWER FACTOR:	99.7	PERCENT
TOTAL HARMONIC DISTORTION:	2.50	PERCENT
OFF STATE POWER:	0.00	WATTS
INPUT VOLTAGE:	277.0	VOLTS AC
INPUT CURRENT:	0.158	AMPS
INPUT POWER:	38.8	WATTS
POWER FACTOR:	88.4	PERCENT
TOTAL HARMONIC DISTORTION:	16.48	PERCENT

**LIGHT OUTPUT**

LUMENS:	3184	lm
EFFICACY:	81.6	lm/W

**SPECTRAL MEASUREMENTS**

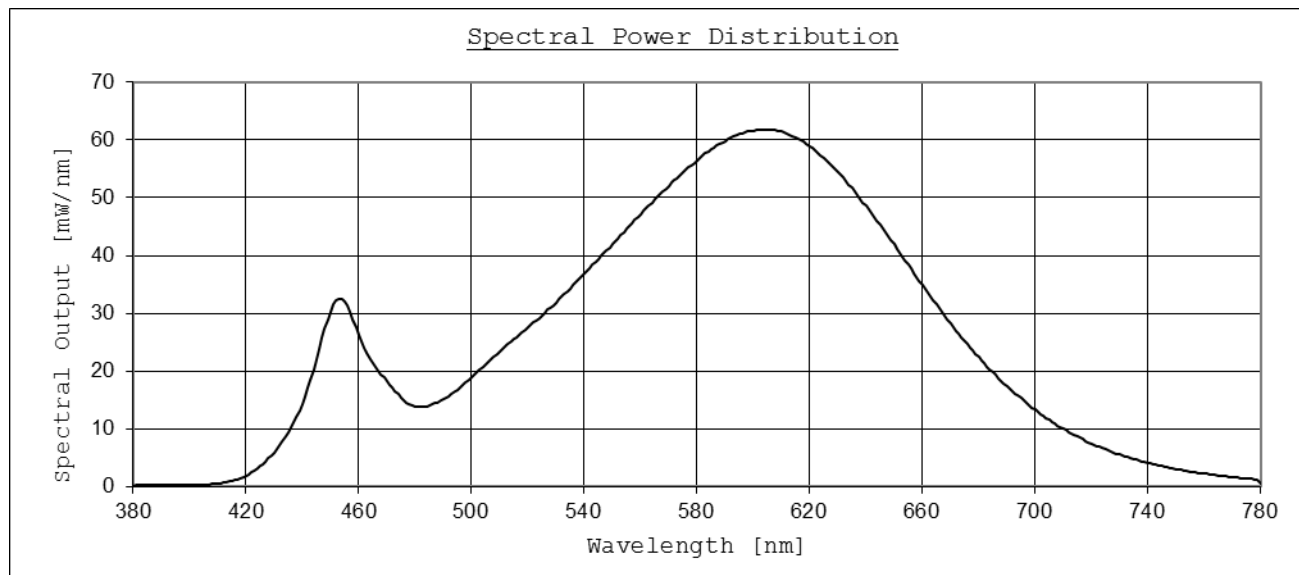
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y:	0.4023	
u/u':	0.2499	
v:	0.3469	
v':	0.5203	
Duv:	0.0005	
CRI (R <sub>a</sub> ):	82.3	
CRI (R <sub>9</sub> ):	15.4	
CCT:	3022	K
RADIANT FLUX:	10023	mW



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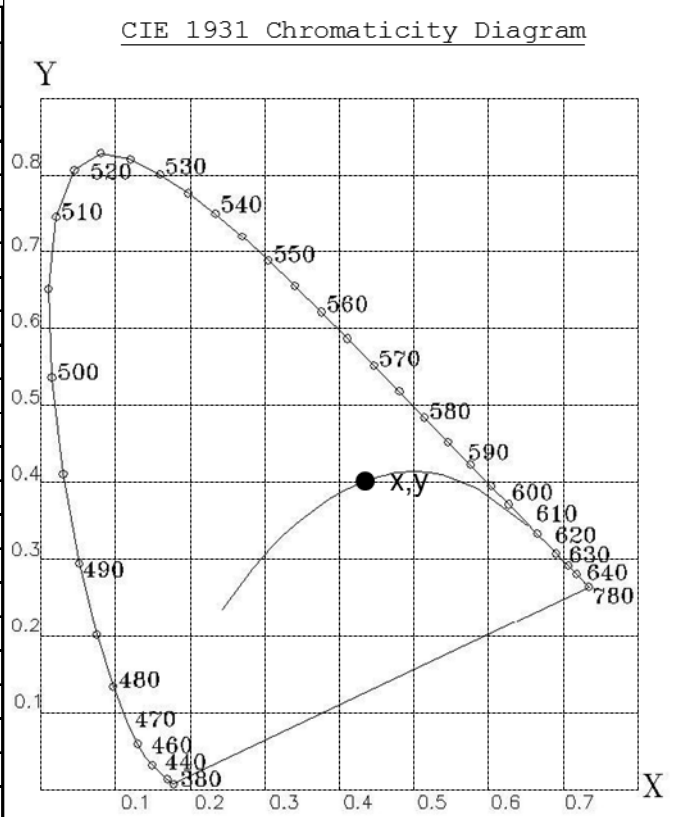
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Tabulated Spectral Power Distribution

Wavelength [nm]	[mW/nm]	Wavelength [nm]	[mW/nm]
380	0.12311	590	59.83410
390	0.21880	600	61.61321
400	0.27117	610	61.48408
410	0.53650	620	58.97055
420	1.92683	630	54.53146
430	5.96569	640	48.63263
440	14.36352	650	41.90456
450	30.32195	660	34.91458
460	26.34988	670	28.27424
470	18.28531	680	22.41459
480	13.88090	690	17.42994
490	15.12429	700	13.29322
500	18.96433	710	10.03847
510	23.39154	720	7.50734
520	27.56200	730	5.58671
530	31.85277	740	4.11709
540	36.86960	750	3.03596
550	41.99472	760	2.27468
560	47.13302	770	1.67249
570	52.09743	780	0.62197
580	56.44183		



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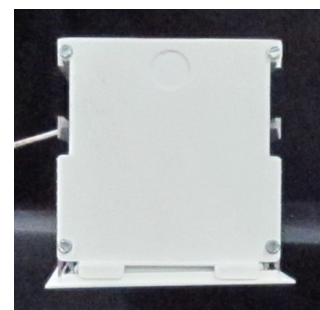
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LUMINOUS OPENING



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 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 C ± 1 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.