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## Photometric Test Report

Relevant Standards  
IES LM-79-2008  
ANSI C82.77-2002  
UL1598-2008

Prepared For  
**Simkar Corporation**

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Philadelphia, PA 19120  
United States

Catalog Number  
**RG2LEDWR12541U1**

Order Number  
10846592  
Test Number  
1116097

Test Date

2015-06-25 - 2015-06-29

Prepared By

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Approved By

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The results contained in this report pertain only to the tested sample.  
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Laboratory results may not be representative of field performance  
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the  $4\pi$  geometry method.  
Absorption correction was employed for Sphere measurement



**Luminaire Description:** White steel housing, white steel reflector plate, no enclosure  
**Lamp:** 168 white LEDs, two boards with 84 LEDs each  
**Mounting:** Pendant  
**Ballast/Driver:** Two Eagle Rise EWP060C2100LED4P

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 23.00 in.  
Luminous Width: 18.00 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 13460 Lumens  
Efficacy: 109.6 lm/w  
CCT: 4065 K  
CRI (Ra): 83.7

**Distribution**

Total Luminaire Output: 13140 Lumens  
Luminaire Efficacy: 107.2 lm/w  
Maximum Candela: 4386 Candela

**Electrical Data at 277 VAC**

Test Temperature: 24.9 °C  
Voltage: 277.0 VAC  
Current: 0.4493 A  
Power: 118.8 W  
Power Factor: 0.955  
Frequency: 60 Hz  
Current THD: 6.82 %

**In-Situ**

LED Temperature: 68.1 °C  
Driver Temperature: 64.2 °C  
Maximum LED Current: 0.1006 A

Temperature is offset to an ambient temperature of 25°C as described in UL1598-2008.



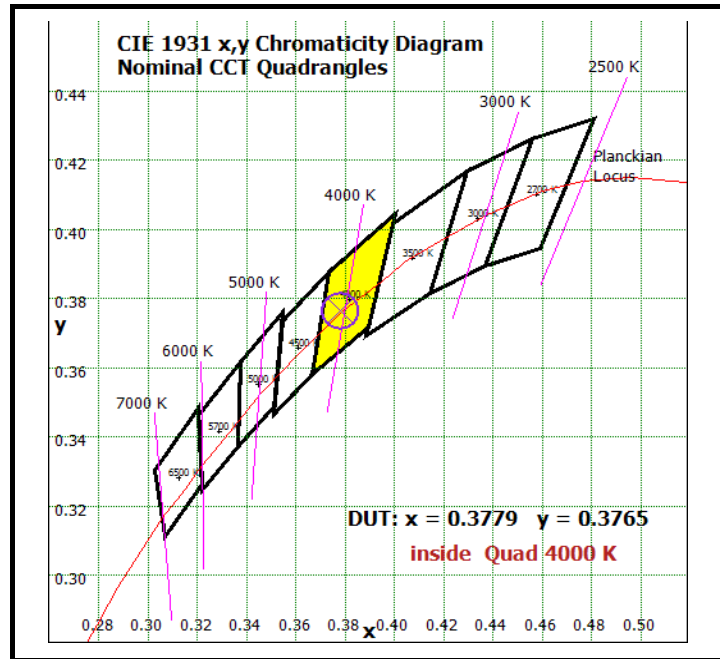
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.4 °C	120.0 VAC	1.032 A	122.8 W	0.991	60 Hz	10.8 %

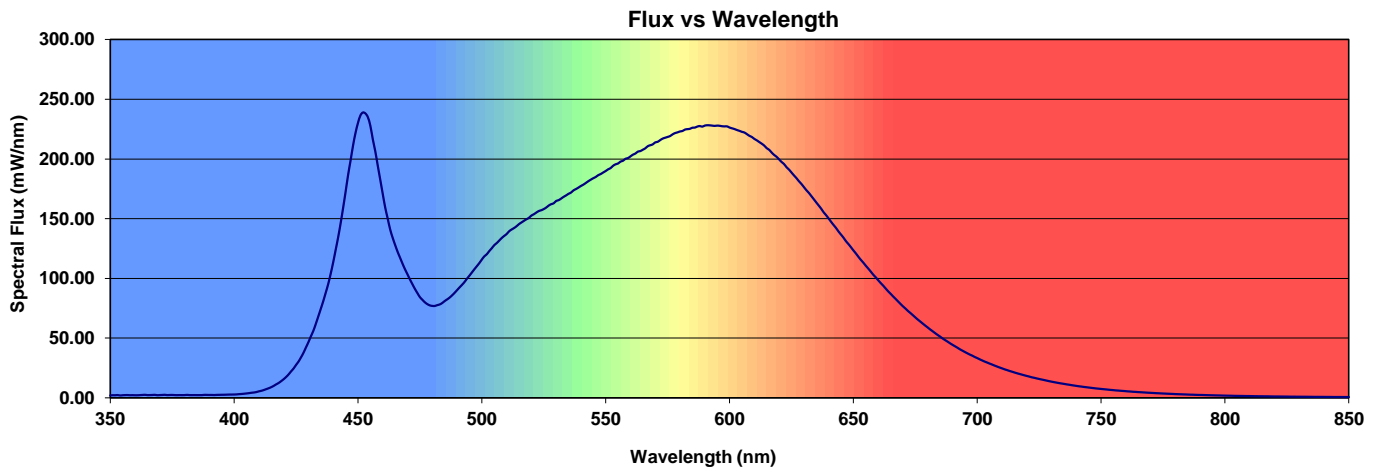
### Summary of Results

<b>Total Output:</b>	13460 Lumens
<b>Efficacy:</b>	109.6 lm/w
<b>CCT:</b>	4065 K
<b>CRI (Ra):</b>	83.7
<b>CRI (R9):</b>	13.6
Chromaticity (x):	0.3779
Chromaticity (y):	0.3765
Chromaticity (u):	0.2235
Chromaticity (v):	0.3341
Chromaticity (u'):	0.2235
Chromaticity (v'):	0.5011
Duv:	0.0000



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.7	81.9	89.9	95.2	82.0	81.9	85.6	86.8	66.5	13.6	75.5	80.5	64.1	83.9	97.5





## Distribution - Goniophotometer

### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.4 °C	120.0 VAC	1.030 A	122.6 W	0.991	60 Hz	9.37 %

### Summary of Results

#### Spacing Criteria

0-180: 1.29  
90-270: 1.29

**Total Lumen Output:**

13140 Lumens

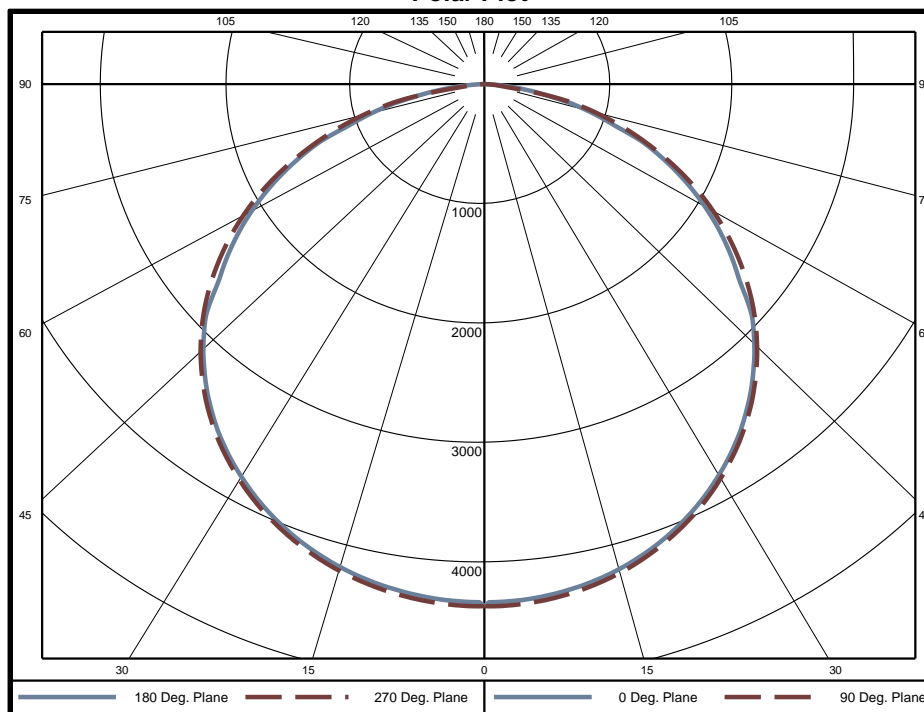
**Luminaire Efficacy:**

107.2 lm/w

**Maximum Candela:**

4386 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	104	0.8%	60-65	929	7.1%	120-125	0	0.0%
5-10	310	2.4%	65-70	772	5.9%	125-130	0	0.0%
10-15	507	3.9%	70-75	581	4.4%	130-135	0	0.0%
15-20	689	5.2%	75-80	375	2.9%	135-140	0	0.0%
20-25	851	6.5%	80-85	150	1.1%	140-145	0	0.0%
25-30	988	7.5%	85-90	24	0.2%	145-150	0	0.0%
30-35	1094	8.3%	90-95	0	0.0%	150-155	0	0.0%
35-40	1166	8.9%	95-100	0	0.0%	155-160	0	0.0%
40-45	1201	9.1%	100-105	0	0.0%	160-165	0	0.0%
45-50	1196	9.1%	105-110	0	0.0%	165-170	0	0.0%
50-55	1144	8.7%	110-115	0	0.0%	170-175	0	0.0%
55-60	1056	8.0%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	5709	43.4%
0-60	10306	78.4%
0-90	13137	100.0%
90-180	0	0.0%



**Candela Tabulation**  
Horizontal Angle (Degrees)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371	4371
5	4326	4372	4362	4352	4359	4352	4362	4372	4326	4372	4362	4352	4359	4352	4362	4372
10	4280	4328	4318	4308	4313	4308	4318	4328	4280	4328	4318	4308	4313	4308	4318	4328
15	4204	4253	4242	4231	4235	4231	4242	4253	4204	4253	4242	4231	4235	4231	4242	4253
20	4095	4145	4133	4124	4124	4124	4133	4145	4095	4145	4133	4124	4124	4124	4133	4145
25	3953	4004	3991	3986	3984	3986	3991	4004	3953	4004	3991	3986	3984	3986	3991	4004
30	3779	3830	3820	3815	3809	3815	3820	3830	3779	3830	3820	3815	3809	3815	3820	3830
35	3579	3624	3616	3610	3606	3610	3616	3624	3579	3624	3616	3610	3606	3610	3616	3624
40	3343	3387	3381	3374	3372	3374	3381	3387	3343	3387	3381	3374	3372	3374	3381	3387
45	3076	3118	3114	3109	3106	3109	3114	3118	3076	3118	3114	3109	3106	3109	3114	3118
50	2741	2820	2815	2810	2810	2810	2815	2820	2741	2820	2815	2810	2810	2810	2815	2820
55	2395	2429	2489	2484	2481	2484	2489	2429	2395	2429	2489	2484	2481	2484	2489	2429
60	2053	2085	2098	2130	2129	2130	2098	2085	2053	2085	2098	2130	2129	2130	2098	2085
65	1687	1710	1713	1750	1746	1750	1713	1710	1687	1710	1713	1750	1746	1750	1713	1710
70	1281	1323	1321	1351	1342	1351	1321	1323	1281	1323	1321	1351	1342	1351	1321	1323
75	862	876	928	926	937	926	928	876	862	876	928	926	937	926	928	876
80	476	483	517	490	438	490	517	483	476	483	517	490	438	490	517	483
85	161	160	92	92	91	92	92	160	161	160	92	92	91	92	92	160
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Average Luminance (cd/m<sup>2</sup>)**  
Horizontal Angle (Degrees)

	0	45	90
0	16370	16370	16370
45	16290	16490	16450
55	15640	16240	16200
65	14950	15180	15460
75	12480	13420	13560
85	6909	3958	3912



### Utilization of Lumens - Zonal Cavity Method

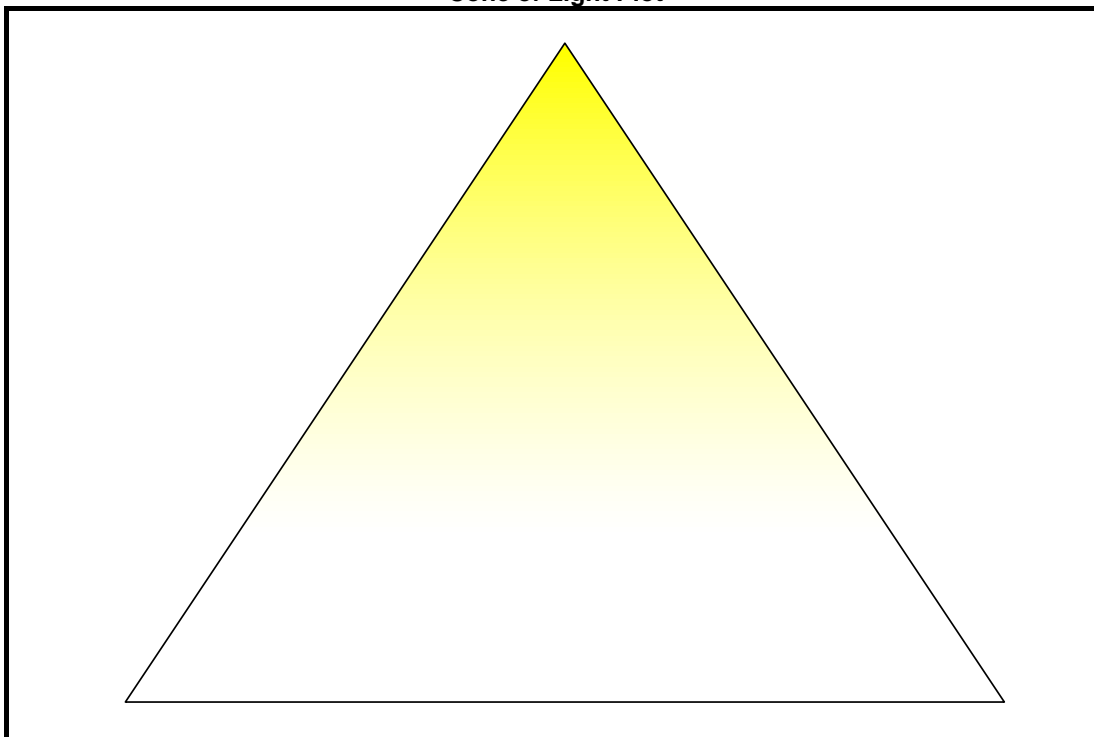
Effective Floor Cavity Reflectance 20%

Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	15637	15637	15637	15637	15274	15274	15274	15274	14595	14595	14595	13974	13974	13974	13403	13403	13403	13135
1	14285	13656	13093	12586	13926	13358	12845	12380	12798	12376	11988	12284	11940	11620	11811	11534	11275	10999
2	12964	11868	10961	10199	12616	11618	10784	10076	11150	10447	9840	10718	10130	9614	10319	9833	9399	9112
3	11793	10389	9302	8436	11464	10179	9171	8358	9785	8920	8208	9421	8683	8064	9082	8458	7924	7633
4	10778	9179	8008	7114	10472	9003	7909	7063	8670	7718	6963	8362	7536	6867	8074	7362	6773	6483
5	9896	8182	6984	6100	9616	8033	6907	6065	7752	6758	5996	7490	6616	5930	7245	6479	5864	5581
6	9127	7351	6160	5305	8872	7225	6099	5280	6986	5981	5231	6762	5867	5183	6553	5758	5136	4862
7	8453	6653	5487	4669	8222	6546	5438	4651	6341	5342	4615	6149	5251	4580	5969	5162	4546	4281
8	7862	6062	4930	4153	7653	5970	4891	4139	5794	4813	4113	5629	4737	4086	5473	4665	4060	3806
9	7339	5557	4465	3727	7151	5477	4432	3717	5325	4367	3696	5182	4305	3676	5047	4245	3656	3412
10	6877	5121	4071	3372	6706	5053	4044	3364	4921	3990	3348	4796	3938	3331	4678	3887	3316	3083

### Cone of Light Tabulation

Mounting Height (Feet)	Footcandles at Nadir	Diameter (Feet)
4.00	273	5.18
6.00	121	7.78
8.00	68.3	10.4
10.0	43.7	13.0
12.0	30.4	15.6
14.0	22.3	18.1
16.0	17.1	20.7

### Cone of Light Plot





## In-Situ Test

### In-Situ Test Conditions

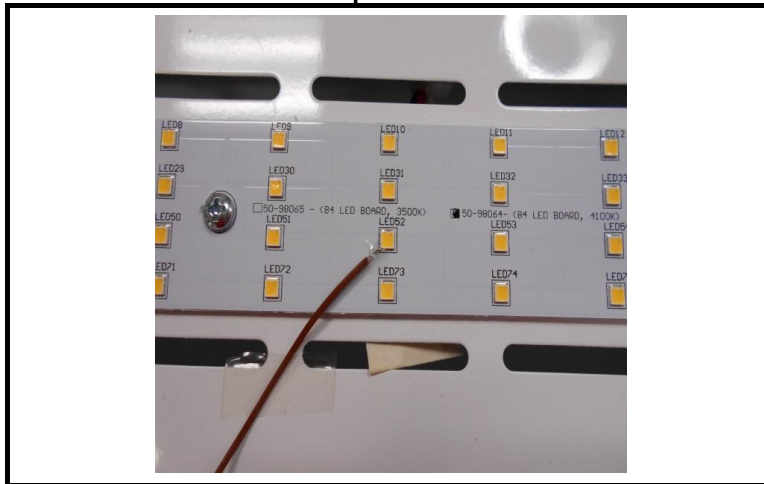
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.5 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

### Summary of Results

LED Temperature: 68.1 °C  
Driver Temperature: 64.2 °C  
Maximum LED Current: 0.1006 A

Temperatures are offset to an ambient temperature of 25°C as described in UL1598-2008

### LED Temperature Location



### Driver Temperature Location

