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## Photometric Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-2002, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2015, IES TM-30-2015

Prepared For  
**TechBrite LLC**  
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Cincinnati, OH 45217  
United States

Catalog Number  
**LB2204SS1B3AXXX**  
Order Number  
11937991  
Test Number  
11937991.06

Test Date

2017-09-11

Prepared By

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Approved By

Alexa Lambert, Project Handler

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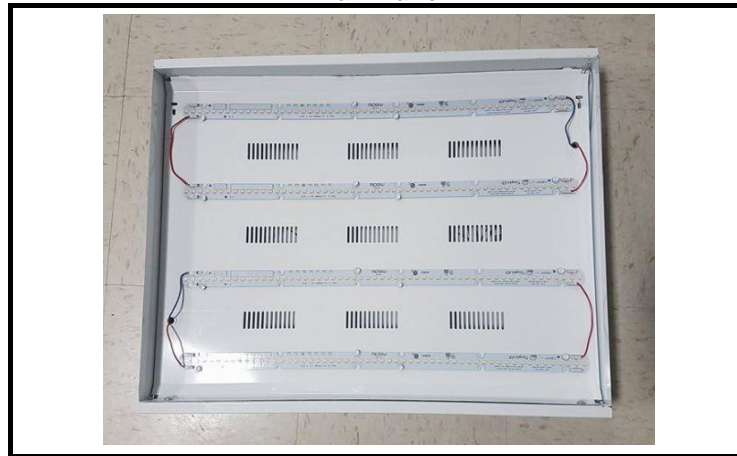
Laboratory results may not be representative of field performance  
Ballast factors have not been applied

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 formed steel housing, no lens enclosure  
**Lamp:** 224 white LEDs  
**Mounting:** Pendant  
**Ballast/Driver:** One Universal Lighting Technologies D15CC55UNVTW-C driver

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 24.00 in.  
Luminous Width: 18.50 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 7874 Lumens  
Efficacy: 138.0 lm/w  
CCT: 3510 K  
CRI (Ra): 83.2

**Distribution**

Total Luminaire Output: 7613 Lumens  
Luminaire Efficacy: 133.2 lm/w  
Maximum Candela: 2685 Candela

**Electrical Data at 277 VAC**

Test Temperature: 25.9 °C  
Voltage: 277.0 VAC  
Current: 0.2071 A  
Power: 56.60 W  
Power Factor: 0.985  
Frequency: 60 Hz  
Current THD: 5.99 %



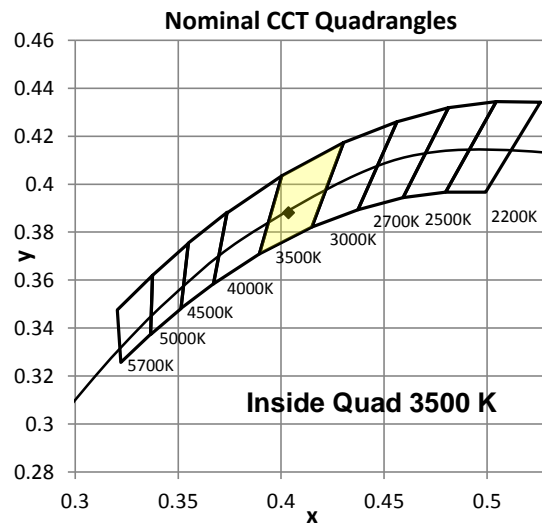
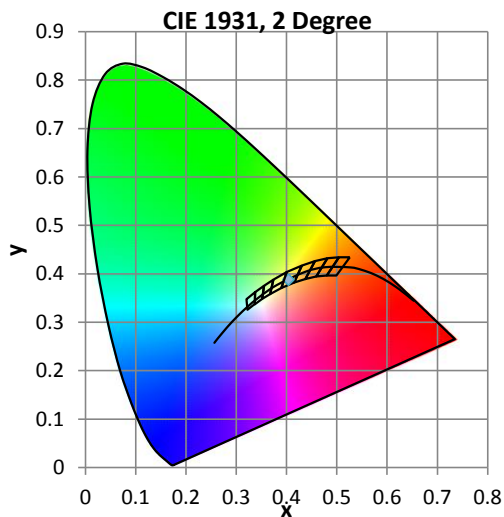
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.8 °C	120.0 VAC	0.4761 A	57.08 W	0.999	60 Hz	4.20 %

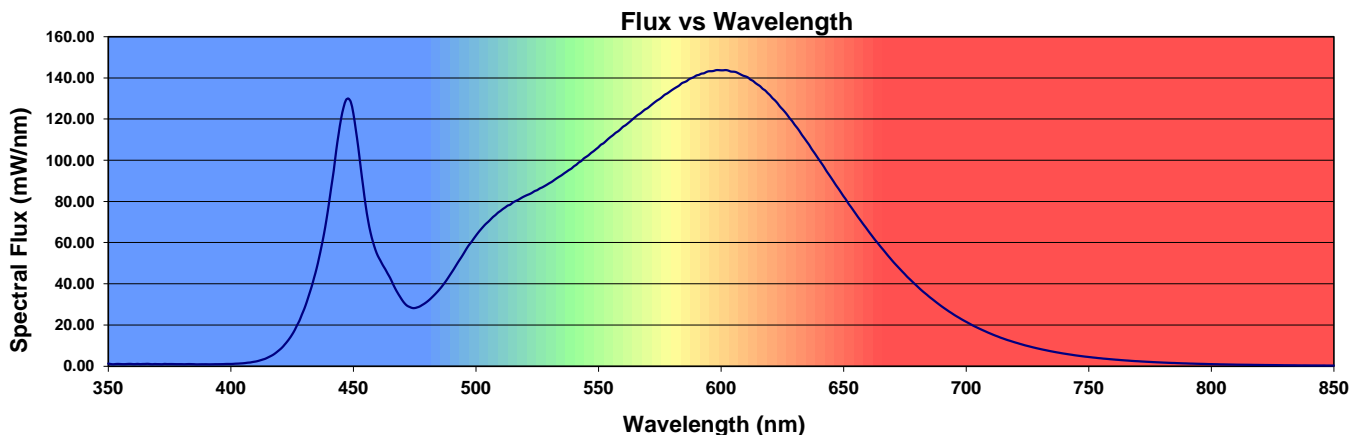
### Summary of Results

<b>Total Output:</b>	7874 Lumens	<b>Chromaticity (x):</b>	0.4037
<b>Efficacy:</b>	138.0 lm/w	<b>Chromaticity (y):</b>	0.3881
<b>CCT:</b>	3510 K	<b>Chromaticity (u'):</b>	0.2358
<b>CRI (Ra):</b>	83.2	<b>Chromaticity (v'):</b>	0.5099
<b>CRI (R9):</b>	12.4	<b>TM-30 Rf:</b>	82.4
<b>Peak Wavelength:</b>	601.3 nm	<b>TM-30 Rg:</b>	97.9
<b>Dominant Wavelength:</b>	581.2 nm	<b>Duv:</b>	0.0010
<b>S/P Ratio:</b>	1.52		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.2	81.5	89.0	95.1	82.7	81.9	85.5	85.4	64.4	12.4	74.6	82.2	69.4	83.0	97.3





## Distribution - Goniophotometer

### Distribution Test Conditions

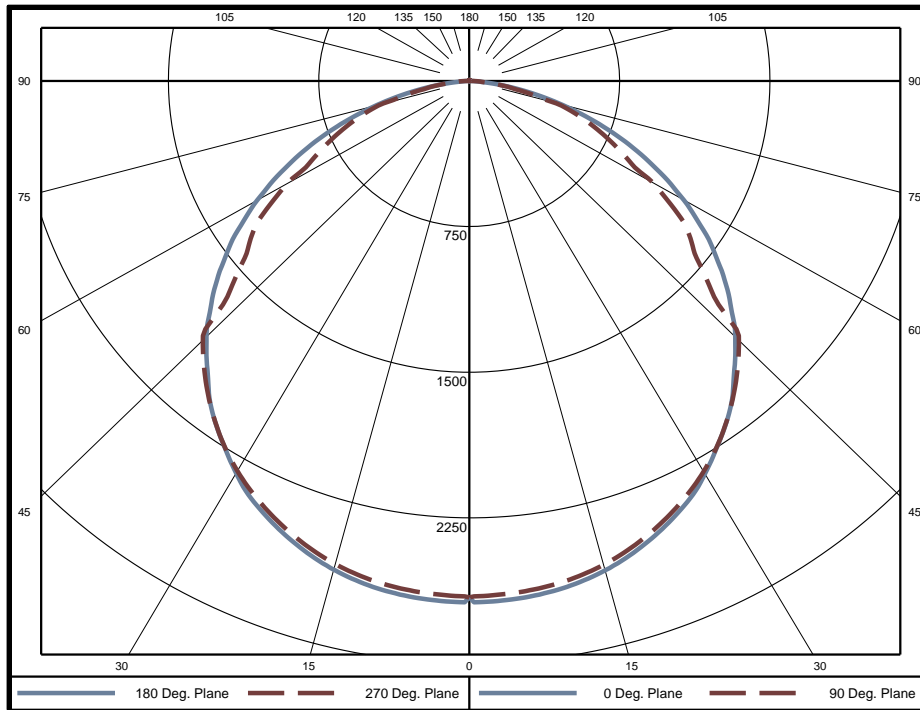
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	120.0 VAC	0.4765 A	57.14 W	0.999	60 Hz	4.17 %

### Summary of Results

**Spacing Criteria**  
 0-180: 1.30  
 90-270: 1.30

**Total Lumen Output:** 7613 Lumens  
**Luminaire Efficacy:** 133.2 lm/w  
**Maximum Candela:** 2685 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	63.5	0.8%	60-65	495.0	6.5%	120-125	0	0.0%
5-10	188.8	2.5%	65-70	396.4	5.2%	125-130	0	0.0%
10-15	309.1	4.1%	70-75	286.0	3.8%	130-135	0	0.0%
15-20	420.3	5.5%	75-80	177.0	2.3%	135-140	0	0.0%
20-25	518.6	6.8%	80-85	78.9	1.0%	140-145	0	0.0%
25-30	601.7	7.9%	85-90	20.1	0.3%	145-150	0	0.0%
30-35	665.3	8.7%	90-95	0	0.0%	150-155	0	0.0%
35-40	706.8	9.3%	95-100	0	0.0%	155-160	0	0.0%
40-45	724.8	9.5%	100-105	0	0.0%	160-165	0	0.0%
45-50	711.3	9.3%	105-110	0	0.0%	165-170	0	0.0%
50-55	659.2	8.7%	110-115	0	0.0%	170-175	0	0.0%
55-60	590.4	7.8%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	3474	45.6%
0-60	6160	80.9%
0-90	7613	100.0%
90-180	0	0.0%



**Candela Tabulation**  
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	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	2659	2659	2659	2659	2659	2659	2659	2659	2659	2659	2659	2659	2659	2659	2659	
	5	2677	2649	2647	2648	2645	2648	2647	2649	2677	2649	2647	2648	2645	2648	2647	2649
	10	2654	2625	2623	2624	2622	2624	2623	2625	2654	2625	2623	2624	2622	2624	2623	2625
	15	2608	2581	2579	2580	2578	2580	2579	2581	2608	2581	2579	2580	2578	2580	2579	2581
	20	2539	2512	2512	2513	2511	2513	2512	2512	2539	2512	2512	2513	2511	2513	2512	2512
	25	2451	2425	2426	2427	2425	2427	2426	2425	2451	2425	2426	2427	2425	2427	2426	2425
	30	2336	2320	2324	2324	2322	2324	2324	2320	2336	2320	2324	2324	2322	2324	2324	2320
	35	2197	2177	2199	2199	2196	2199	2199	2177	2197	2177	2199	2199	2196	2199	2199	2177
	40	2036	2029	2045	2052	2050	2052	2045	2029	2036	2029	2045	2052	2050	2052	2045	2029
	45	1864	1852	1876	1892	1889	1892	1876	1852	1864	1852	1876	1892	1889	1892	1876	1852
	50	1670	1668	1696	1562	1503	1562	1696	1668	1670	1668	1696	1562	1503	1562	1696	1668
	55	1461	1460	1494	1316	1312	1316	1494	1460	1461	1460	1494	1316	1312	1316	1494	1460
	60	1228	1234	1112	1090	1054	1090	1112	1234	1228	1234	1112	1090	1054	1090	1112	1234
	65	981	994	902	811	804	811	902	994	981	994	902	811	804	811	902	994
	70	730	745	615	624	631	624	615	745	730	745	615	624	631	624	615	745
75	480	454	419	440	446	440	419	454	480	454	419	440	446	440	419	454	
80	253	225	223	214	218	214	223	225	253	225	223	214	218	214	223	225	
85	70	71	75	76	72	76	75	71	70	71	75	76	72	76	75	71	
90	8	6	8	9	9	9	8	6	8	6	8	9	9	9	8	6	
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)

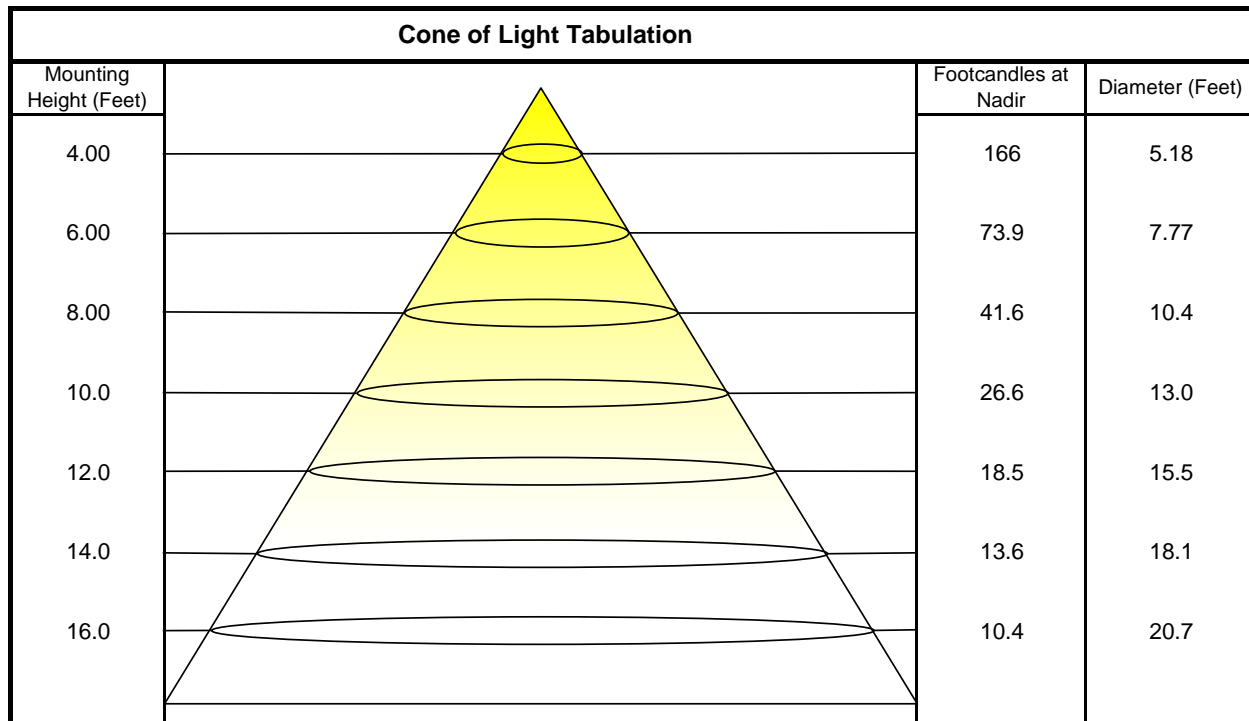
Vertical Angle (Degrees)	Horizontal Angle (Degrees)			
	0	45	90	
	0	9283	9283	9283
	45	9204	9264	9325
	55	8890	9091	7985
	65	8107	7451	6642
	75	6474	5651	6015
85	2788	3019	2888	



### 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	9063	9063	9063	9063	8853	8853	8853	8853	8459	8459	8459	8099	8099	8099	7769	7769	7769	7613
1	8307	7955	7639	7354	8101	7782	7495	7235	7459	7223	7006	7163	6970	6792	6889	6735	6590	6432
2	7564	6948	6439	6010	7365	6805	6336	5938	6535	6141	5800	6287	5957	5668	6057	5784	5542	5378
3	6899	6107	5493	5005	6711	5987	5418	4959	5760	5273	4871	5550	5135	4786	5356	5005	4704	4539
4	6317	5411	4748	4242	6142	5310	4691	4212	5119	4580	4154	4942	4475	4097	4777	4374	4041	3877
5	5808	4834	4153	3651	5648	4749	4109	3631	4587	4023	3591	4436	3941	3551	4296	3862	3513	3351
6	5361	4350	3671	3185	5215	4278	3636	3170	4140	3568	3141	4012	3502	3113	3891	3439	3086	2929
7	4968	3941	3276	2809	4836	3880	3247	2799	3762	3192	2778	3652	3139	2757	3548	3088	2737	2585
8	4623	3594	2947	2503	4503	3541	2924	2495	3440	2879	2479	3345	2836	2464	3256	2794	2448	2303
9	4317	3296	2671	2249	4209	3251	2652	2243	3163	2615	2231	3081	2579	2219	3003	2544	2207	2068
10	4046	3039	2437	2037	3948	3000	2421	2032	2924	2390	2022	2852	2360	2013	2784	2331	2004	1870

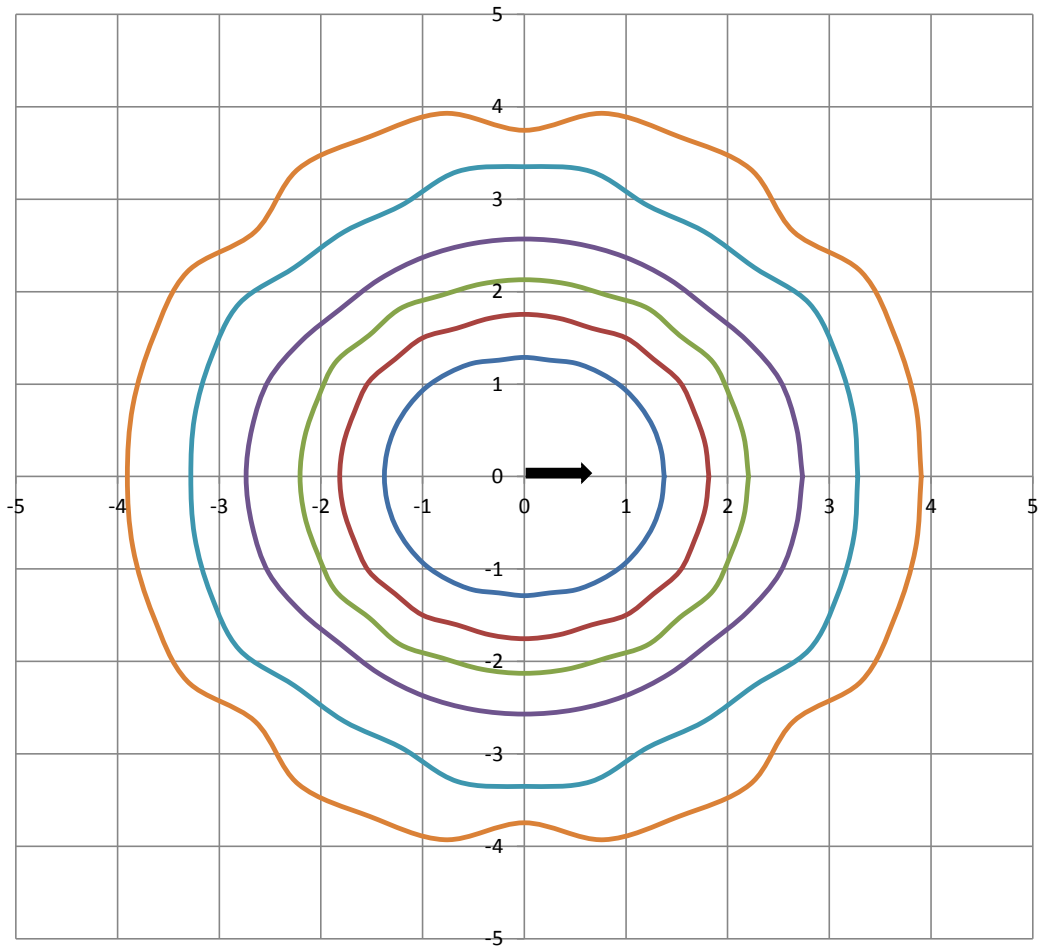
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	2659 Candela
Central Cone Intensity:	2656 Candela
Beam Flux:	5742.1 Lumens
Beam Angle (0-180):	115.6 Degrees
Beam Angle (90-270):	109.0 Degrees
Field Angle (0-180):	159.4 Degrees
Field Angle (90-270):	157.4 Degrees





# ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

