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Photometric Test Report

Relevant Standards
IES LM-79-2008, ANSI C82.77-2002, UL 1598-2008
CIE 13.3-1995, CIE 15-2004, ANSI C78.377-2015
IES TM-30-2015

Prepared For
TechBrite LLC
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United States

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LT224SS1B30CC000,RT224SS1B30CC000
Order Number
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Test Number
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Test Date

2017-05-04 - 2017-05-09

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 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: White steel housing, prismatic lens enclosure. Tested in an A.L.P EL 2x2 housing.
Lamp: 112 white LEDs
Mounting: Surface – Ceiling
Ballast/Driver: Everline D700CC30UNVTZ-C

Luminaire



Luminaire Characteristics

Luminous Length: 21.00 in.
Luminous Width: 21.00 in.

Summary of Results

Integrating Sphere

Luminous Flux: 3319 Lumens
Efficacy: 107.4 lm/w
CCT: 3088 K
CRI (Ra): 82.7

Distribution

Total Luminaire Output: 3224 Lumens
Luminaire Efficacy: 104.2 lm/w
Maximum Candela: 1431 Candela

Electrical Data at 276 VAC

Test Temperature: 25.0 °C
Voltage: 276.9 VAC
Current: 0.1163 A
Power: 31.33 W
Power Factor: 0.973
Frequency: 60 Hz
Current THD: 10.9 %

In-Situ

LED Temperature: 40.9 °C
Driver Temperature: 45.2 °C
Measured LED Current: 0.08100 A

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



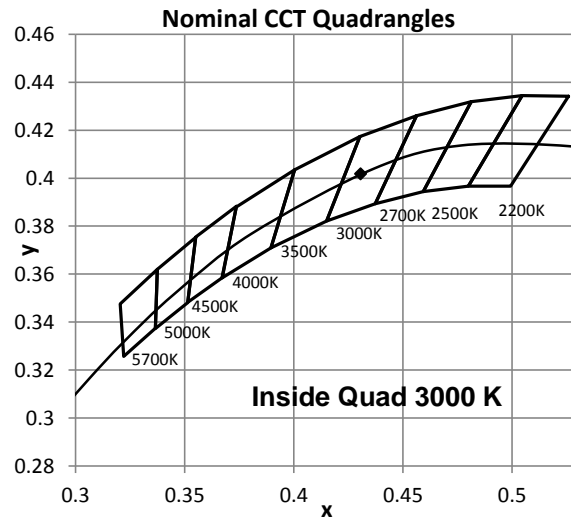
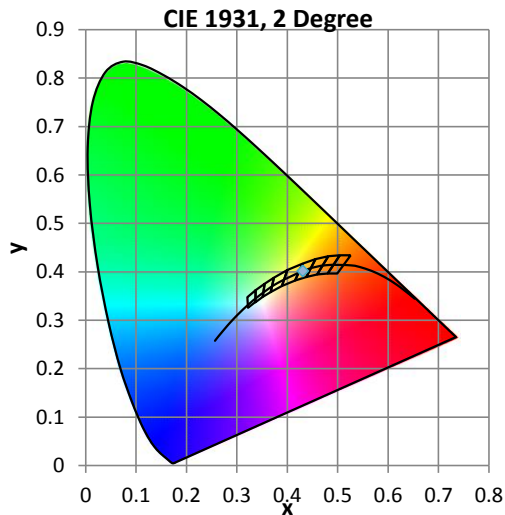
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.2586 A	30.91 W	0.996	60 Hz	7.74 %

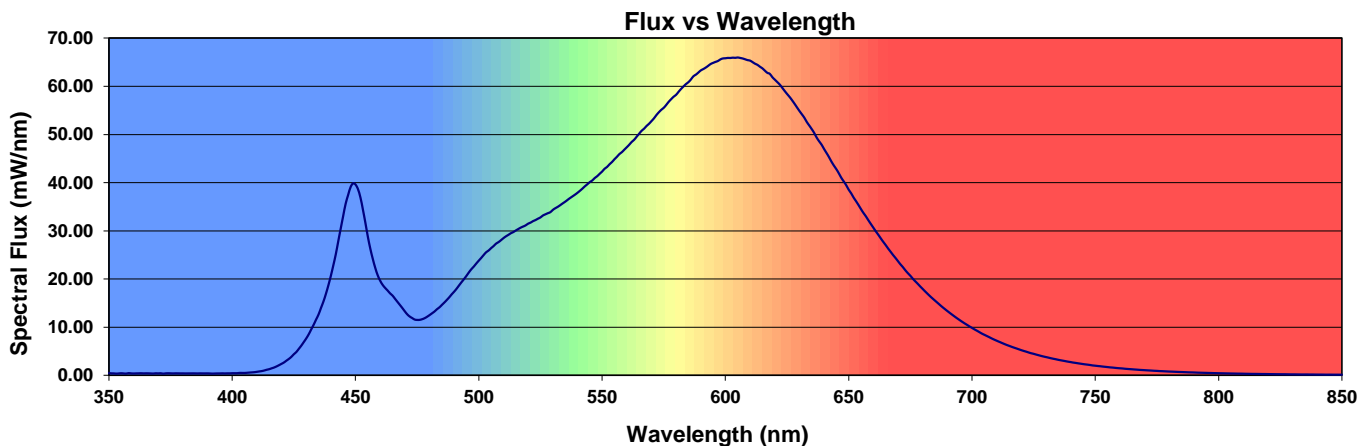
Summary of Results

Total Output:	3319 Lumens	Chromaticity (x):	0.4306
Efficacy:	107.4 lm/w	Chromaticity (y):	0.4018
CCT:	3088 K	Chromaticity (u'):	0.2475
CRI (Ra):	82.7	Chromaticity (v'):	0.5196
CRI (R9):	7.8	TM-30 Rf:	83.1
Peak Wavelength:	604.2 nm	TM-30 Rg:	97
Dominant Wavelength:	582.5 nm	Duv:	0.0005
S/P Ratio:	1.372		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
82.7	80.8	90.2	96.8	81.1	81.1	88.0	83.5	60.0	7.8	77.9	80.5	72.2	82.8	98.6





Distribution - Goniophotometer

Distribution Test Conditions

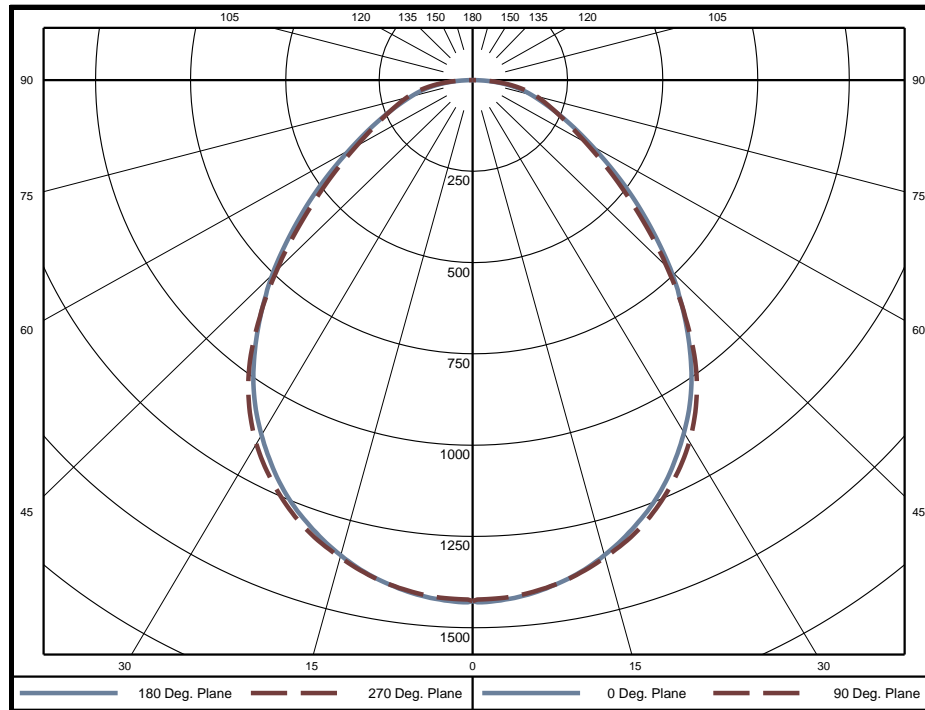
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	119.9 VAC	0.2590 A	30.94 W	0.996	60 Hz	7.67 %

Summary of Results

Spacing Criteria
 0-180: 1.17
 90-270: 1.17

Total Lumen Output: 3224 Lumens
Luminaire Efficacy: 104.2 lm/w
Maximum Candela: 1431 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	34.0	1.1%	60-65	152.4	4.7%	120-125	0	0.0%
5-10	100.6	3.1%	65-70	122.2	3.8%	125-130	0	0.0%
10-15	162.8	5.0%	70-75	98.2	3.0%	130-135	0	0.0%
15-20	218.0	6.8%	75-80	76.2	2.4%	135-140	0	0.0%
20-25	263.9	8.2%	80-85	50.2	1.6%	140-145	0	0.0%
25-30	297.5	9.2%	85-90	19.5	0.6%	145-150	0	0.0%
30-35	316.4	9.8%	90-95	0	0.0%	150-155	0	0.0%
35-40	318.0	9.9%	95-100	0	0.0%	155-160	0	0.0%
40-45	301.6	9.4%	100-105	0	0.0%	160-165	0	0.0%
45-50	271.2	8.4%	105-110	0	0.0%	165-170	0	0.0%
50-55	231.3	7.2%	110-115	0	0.0%	170-175	0	0.0%
55-60	189.7	5.9%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1711	53.1%
0-60	2705	83.9%
0-90	3224	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	1427	1427	1427	1427	1427	1427	1427	1427	1427	1427	1427	1427	1427	1427	1427	1427
5	1421	1418	1420	1417	1416	1417	1420	1418	1421	1418	1420	1417	1416	1417	1420	1418
10	1393	1391	1395	1394	1394	1394	1395	1391	1393	1391	1395	1394	1394	1394	1395	1391
15	1348	1348	1352	1354	1355	1354	1352	1348	1348	1348	1352	1354	1355	1354	1352	1348
20	1288	1287	1294	1300	1304	1300	1294	1287	1288	1287	1294	1300	1304	1300	1294	1287
25	1214	1212	1219	1229	1234	1229	1219	1212	1214	1212	1219	1229	1234	1229	1219	1212
30	1121	1119	1125	1138	1149	1138	1125	1119	1121	1119	1125	1138	1149	1138	1125	1119
35	1014	1009	1013	1027	1037	1027	1013	1009	1014	1009	1013	1027	1037	1027	1013	1009
40	885	883	884	889	893	889	884	883	885	883	884	889	893	889	884	883
45	750	751	749	736	733	736	749	751	750	751	749	736	733	736	749	751
50	610	614	606	585	582	585	606	614	610	614	606	585	582	585	606	614
55	483	482	468	455	454	455	468	482	483	482	468	455	454	455	468	482
60	373	367	353	349	351	349	353	367	373	367	353	349	351	349	353	367
65	287	279	263	271	277	271	263	279	287	279	263	271	277	271	263	279
70	219	211	202	217	222	217	202	211	219	211	202	217	222	217	202	211
75	166	161	156	170	179	170	156	161	166	161	156	170	179	170	156	161
80	119	115	115	123	130	123	115	115	119	115	115	123	130	123	115	115
85	61	58	62	69	71	69	62	58	61	58	62	69	71	69	62	58
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/m²)
Horizontal Angle (Degrees)

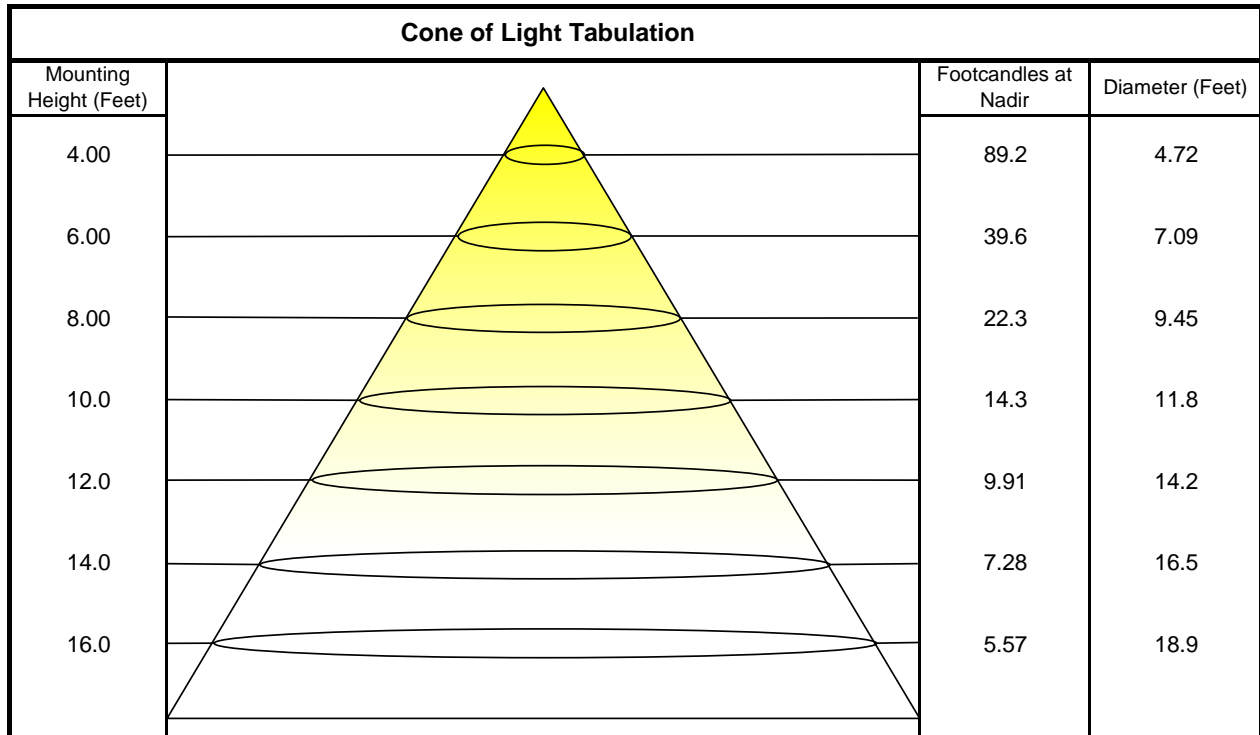
Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	5016	5016	5016
45	3730	3725	3642
55	2961	2865	2782
65	2386	2187	2302
75	2253	2112	2425
85	2473	2507	2850



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	3838	3838	3838	3838	3748	3748	3748	3748	3582	3582	3582	3429	3429	3429	3289	3289	3289	3224
1	3529	3384	3255	3138	3442	3312	3194	3087	3175	3079	2990	3050	2971	2899	2935	2872	2813	2747
2	3237	2989	2784	2611	3154	2929	2740	2580	2816	2658	2521	2712	2580	2464	2615	2507	2409	2342
3	2974	2657	2411	2215	2897	2607	2379	2195	2512	2318	2157	2425	2259	2120	2344	2204	2084	2017
4	2742	2379	2113	1910	2670	2337	2089	1897	2258	2042	1872	2184	1998	1847	2116	1955	1822	1756
5	2536	2145	1872	1670	2470	2110	1853	1661	2043	1817	1643	1980	1782	1626	1922	1749	1609	1544
6	2353	1946	1673	1477	2293	1916	1658	1470	1859	1629	1458	1806	1601	1445	1756	1575	1433	1370
7	2190	1775	1507	1318	2136	1750	1495	1314	1701	1472	1304	1656	1449	1295	1613	1428	1286	1225
8	2045	1629	1367	1187	1996	1607	1357	1183	1565	1338	1176	1526	1320	1169	1489	1302	1163	1104
9	1916	1501	1248	1076	1872	1483	1240	1073	1446	1224	1068	1412	1209	1063	1380	1194	1058	1001
10	1800	1390	1145	982	1760	1374	1139	980	1343	1126	976	1313	1113	972	1285	1101	968	913

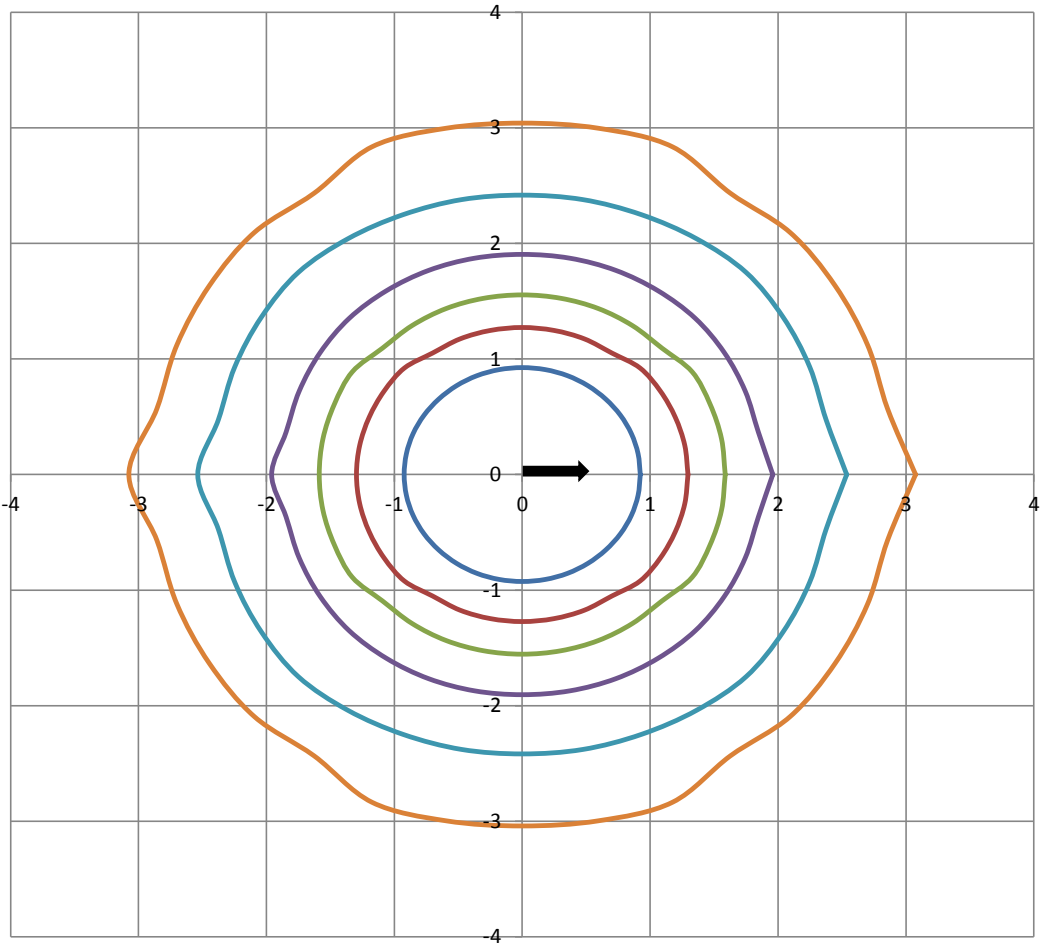
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	1427 Candela
Central Cone Intensity:	1424 Candela
Beam Flux:	2073.5 Lumens
Beam Angle (0-180):	92.6 Degrees
Beam Angle (90-270):	91.3 Degrees
Field Angle (0-180):	155.1 Degrees
Field Angle (90-270):	157.6 Degrees





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height





In-Situ Test

In-Situ Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.8 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

LED Temperature: 40.9 °C
Driver Temperature: 45.2 °C
Measured LED Current: 0.08100 A

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

LED Temperature Location



Driver Temperature Location

