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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**  
1000 Kieley Pl  
Cincinnati, OH 45217  
United States

Catalog Number  
**SL44SS1B30EL0XX**  
Order Number  
12223046  
Test Number  
12223046.01

Test Date

2018-03-23 - 2018-03-27

Revised 2018-04-23

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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 formed steel housing, frosted plastic lens enclosure  
**Lamp:** 108 white LEDs  
**Mounting:** Surface – Ceiling  
**Ballast/Driver:** One Universal Lighting Technologies D15CC55UNVTW-C driver

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 48.00 in.  
Luminous Width: 4.500 in.  
Luminous Height: 1.00 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 5914 Lumens  
Efficacy: 102.4 lm/w  
CCT: 3085 K  
CRI (Ra): 83.2

**Distribution**

Total Luminaire Output: 5860 Lumens  
Luminaire Efficacy: 101.4 lm/w  
Maximum Candela: 1739 Candela

**Electrical Data at 277 VAC**

Test Temperature: 25.7 °C  
Voltage: 277.1 VAC  
Current: 0.2080 A  
Power: 57.04 W  
Power Factor: 0.985  
Frequency: 60 Hz  
Current THD: 6.56 %

**In-Situ**

LED Temperature: 58.8 °C  
Driver Temperature: 71.6 °C  
Measured LED Current: 0.1570 A

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



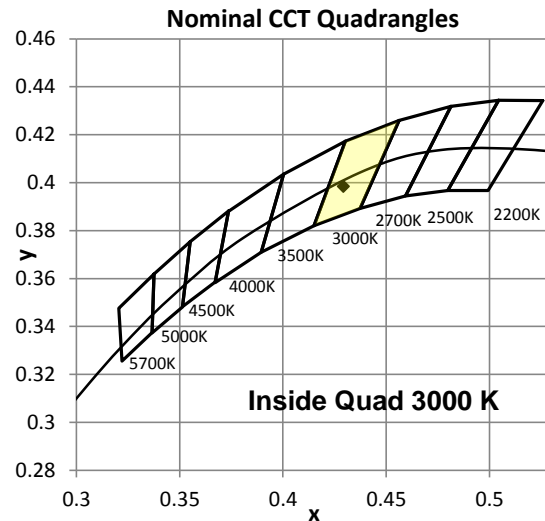
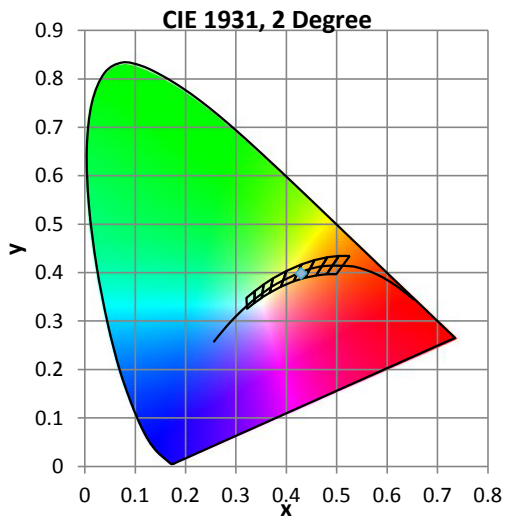
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.6 °C	120.0 VAC	0.4819 A	57.75 W	0.998	60 Hz	5.12 %

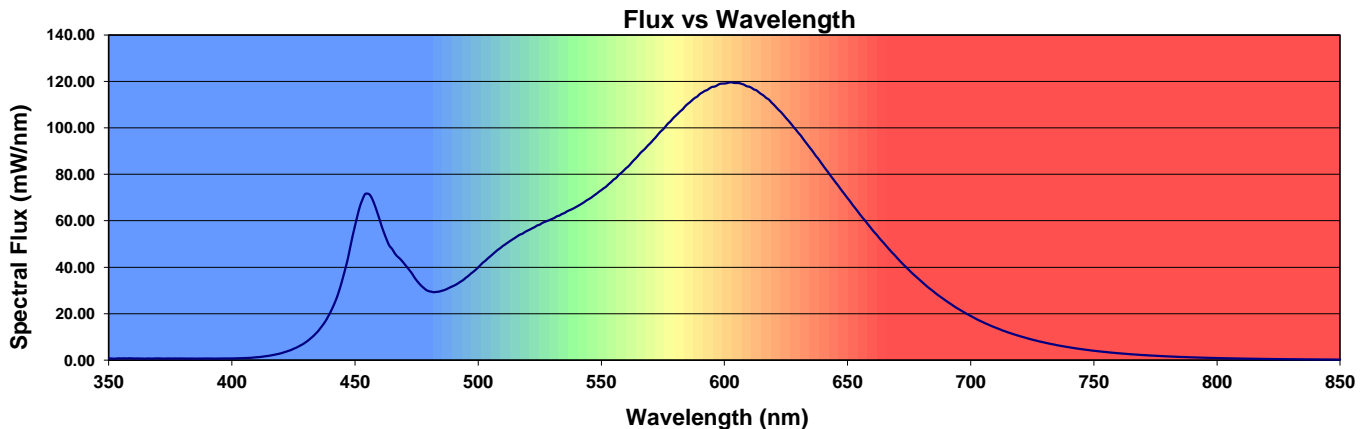
### Summary of Results

<b>Total Output:</b>	5914 Lumens	<b>Chromaticity (x):</b>	0.4292
<b>Efficacy:</b>	102.4 lm/w	<b>Chromaticity (y):</b>	0.3984
<b>CCT:</b>	3085 K	<b>Chromaticity (u'):</b>	0.2480
<b>CRI (Ra):</b>	83.2	<b>Chromaticity (v'):</b>	0.5180
<b>CRI (R9):</b>	10.2	<b>TM-30 Rf:</b>	83
<b>Peak Wavelength:</b>	602.9 nm	<b>TM-30 Rg:</b>	94.6
<b>Dominant Wavelength:</b>	582.9 nm	<b>Duv:</b>	-0.0017
<b>S/P Ratio:</b>	1.414		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
83.2	82.3	93.2	94.3	80.0	82.6	91.5	81.8	59.5	10.2	84.2	79.3	72.9	85.2	97.6	75.3





## Distribution - Goniophotometer

### Distribution Test Conditions

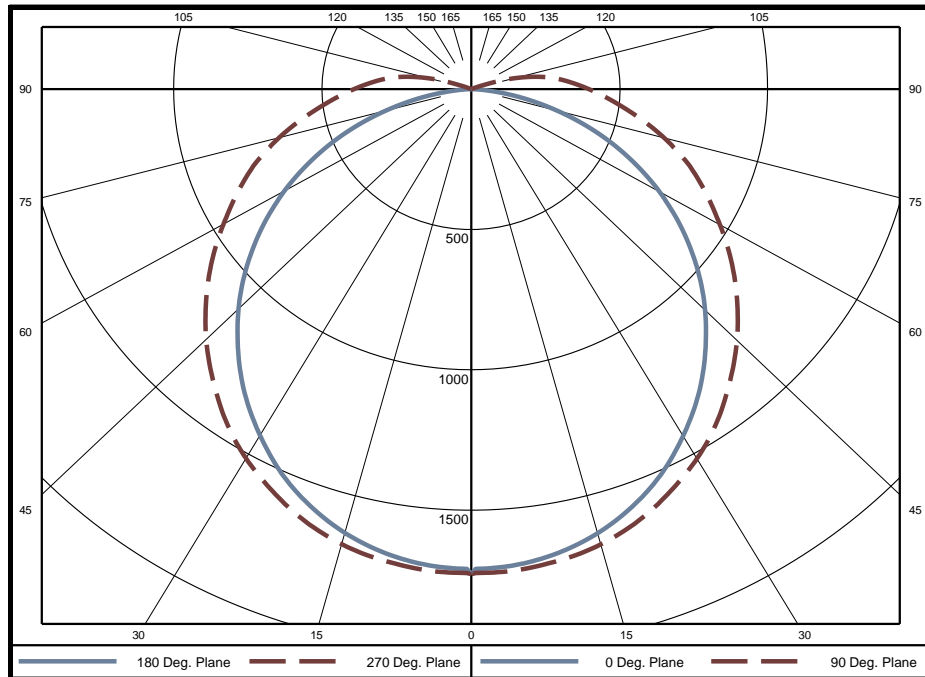
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.6 °C	120.0 VAC	0.4821 A	57.78 W	0.998	60 Hz	5.05 %

### Summary of Results

**Spacing Criteria**  
 0-180: 1.23  
 90-270: 1.31

**Total Lumen Output:** 5860 Lumens  
**Luminaire Efficacy:** 101.4 lm/w  
**Maximum Candela:** 1739 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	41.2	0.7%	60-65	387.5	6.6%	120-125	0	0.0%
5-10	122.4	2.1%	65-70	345.4	5.9%	125-130	0	0.0%
10-15	200.0	3.4%	70-75	296.7	5.1%	130-135	0	0.0%
15-20	271.1	4.6%	75-80	242.8	4.1%	135-140	0	0.0%
20-25	333.2	5.7%	80-85	188.5	3.2%	140-145	0	0.0%
25-30	384.7	6.6%	85-90	141.2	2.4%	145-150	0	0.0%
30-35	424.1	7.2%	90-95	107.0	1.8%	150-155	0	0.0%
35-40	449.8	7.7%	95-100	75.0	1.3%	155-160	0	0.0%
40-45	461.9	7.9%	100-105	42.3	0.7%	160-165	0	0.0%
45-50	461.4	7.9%	105-110	12.9	0.2%	165-170	0	0.0%
50-55	447.9	7.6%	110-115	0.4	0.0%	170-175	0	0.0%
55-60	422.4	7.2%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	2227	38.0%
0-60	4020	68.6%
0-90	5622	95.9%
90-180	238	4.1%



**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	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727	1727
5	1701	1731	1720	1722	1720	1722	1720	1731	1701	1731	1720	1722	1720	1722	1720	1731
10	1677	1709	1701	1706	1704	1706	1701	1709	1677	1709	1701	1706	1704	1706	1701	1709
15	1638	1671	1668	1679	1678	1679	1668	1671	1638	1671	1668	1679	1678	1679	1668	1671
20	1582	1618	1618	1634	1637	1634	1618	1618	1582	1618	1618	1634	1637	1634	1618	1618
25	1512	1549	1556	1577	1580	1577	1556	1549	1512	1549	1556	1577	1580	1577	1556	1549
30	1425	1468	1482	1510	1517	1510	1482	1468	1425	1468	1482	1510	1517	1510	1482	1468
35	1330	1375	1397	1430	1440	1430	1397	1375	1330	1375	1397	1430	1440	1430	1397	1375
40	1223	1269	1301	1340	1352	1340	1301	1269	1223	1269	1301	1340	1352	1340	1301	1269
45	1111	1158	1197	1244	1261	1244	1197	1158	1111	1158	1197	1244	1261	1244	1197	1158
50	991	1041	1087	1143	1164	1143	1087	1041	991	1041	1087	1143	1164	1143	1087	1041
55	863	915	973	1039	1065	1039	973	915	863	915	973	1039	1065	1039	973	915
60	730	785	856	934	963	934	856	785	730	785	856	934	963	934	856	785
65	590	653	744	833	867	833	744	653	590	653	744	833	867	833	744	653
70	447	519	636	738	773	738	636	519	447	519	636	738	773	738	636	519
75	302	390	532	634	670	634	532	390	302	390	532	634	670	634	532	390
80	166	279	421	528	567	528	421	279	166	279	421	528	567	528	421	279
85	53	175	320	433	474	433	320	175	53	175	320	433	474	433	320	175
90	0	100	243	353	394	353	243	100	0	100	243	353	394	353	243	100
95	0	46	180	284	323	284	180	46	0	46	180	284	323	284	180	46
100	0	0	103	209	247	209	103	0	0	0	103	209	247	209	103	0
105	0	0	13	110	149	110	13	0	0	0	13	110	149	110	13	0
110	0	0	0	8	32	8	0	0	0	0	0	8	32	8	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)

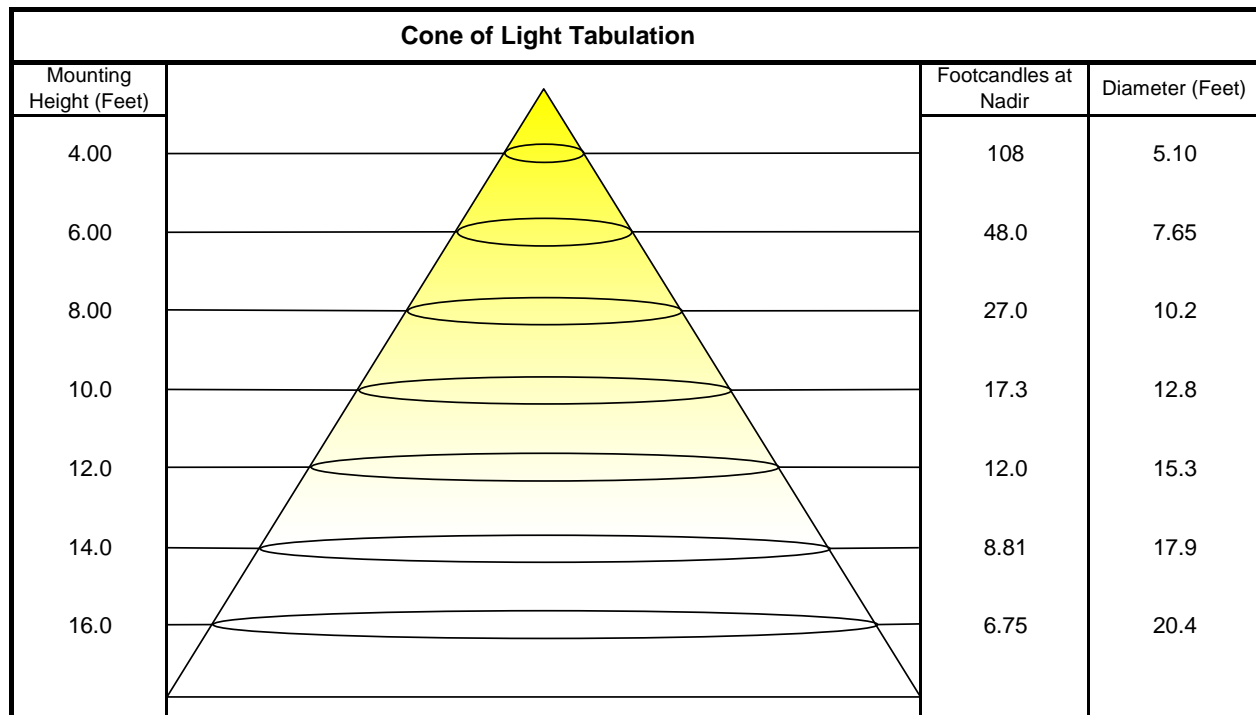
	0	45	90
0	12390	12390	12390
45	11040	10360	10470
55	10490	9777	10110
65	9586	9227	9964
75	7760	8991	10150
85	3529	8891	11030



### 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	6919	6919	6919	6919	6731	6731	6731	6731	6379	6379	6379	6057	6057	6057	5761	5761	5761	5622
1	6200	5870	5575	5309	6009	5711	5443	5199	5413	5192	4989	5140	4959	4792	4888	4743	4607	4461
2	5595	5056	4611	4236	5411	4922	4513	4166	4670	4327	4031	4438	4152	3902	4223	3988	3778	3630
3	5076	4407	3889	3476	4904	4293	3814	3428	4080	3671	3335	3883	3536	3245	3700	3408	3158	3012
4	4634	3885	3337	2918	4475	3789	3278	2884	3608	3166	2816	3440	3059	2751	3283	2957	2688	2546
5	4253	3459	2905	2495	4108	3378	2858	2470	3223	2768	2419	3080	2682	2370	2945	2600	2322	2185
6	3922	3106	2559	2166	3790	3037	2521	2147	2904	2448	2108	2781	2377	2069	2665	2310	2032	1901
7	3632	2811	2278	1905	3513	2751	2247	1889	2637	2186	1858	2530	2128	1827	2430	2071	1797	1673
8	3378	2561	2046	1693	3271	2509	2020	1680	2410	1969	1655	2317	1920	1630	2230	1873	1605	1487
9	3155	2347	1852	1518	3057	2302	1830	1508	2216	1787	1487	2135	1745	1466	2058	1705	1446	1333
10	2956	2163	1689	1373	2868	2124	1670	1364	2048	1633	1346	1977	1597	1329	1910	1562	1312	1205

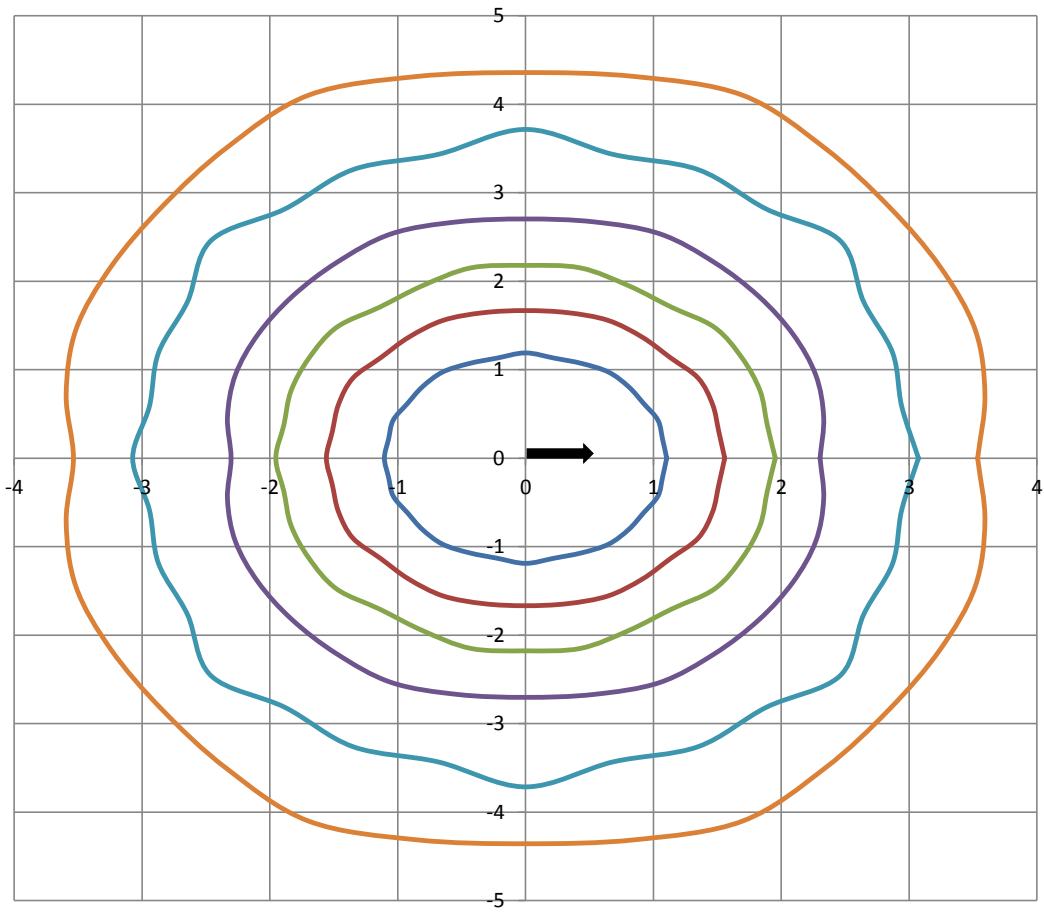
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	1727 Candela
Central Cone Intensity:	1725 Candela
Beam Flux:	4041.5 Lumens
Beam Angle (0-180):	110.0 Degrees
Beam Angle (90-270):	130.3 Degrees
Field Angle (0-180):	159.5 Degrees
Field Angle (90-270):	207.7 Degrees





### ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height







## In-Situ Test

### In-Situ Test Conditions

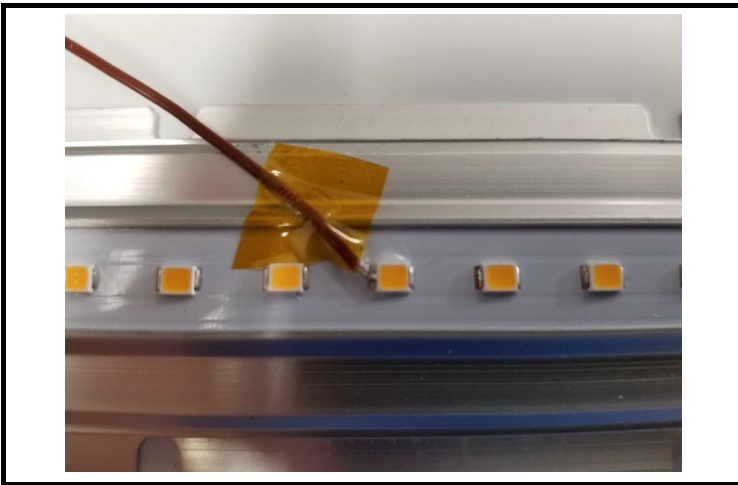
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.5 °C	121.0 VAC	N/A	N/A	N/A	60 Hz	N/A

### Summary of Results

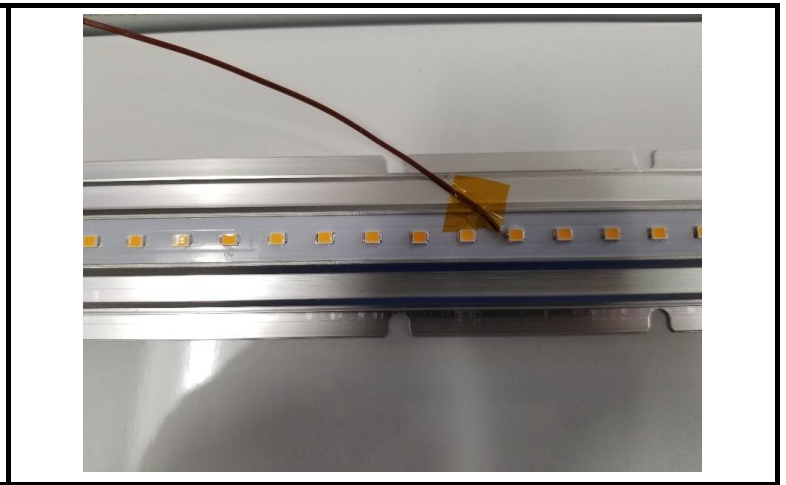
LED Temperature: 58.8 °C  
Driver Temperature: 71.6 °C  
Measured LED Current: 0.1570 A

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

### LED Temperature Location



### Thermocouple Reference



### Driver Temperature Location

