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ACCREDITED

NVLAP LAB CODE 201042-0

Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C78.377-2011, ANSI C82.77-2002
CIE 13.3-1995, CIE 15-2004, IES TM-30-15, UL 1598-2008

Prepared For

TechBrite LLC
1000 Kieley Pl
Cincinnati, OH 45217
United States

Catalog Number

L424SS1B30AC000,R424SS1B30AC000

Order Number
11621025
Test Number
11621025.07

Test Date

2017-02-16 - 2017-02-20

Prepared By	Approved By
Javier Caban, Technician	Tiffany Hamm, Project Handler

The results contained in this report pertain only to the tested sample.
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Table of Contents

Summary of Results Page 3

Integrating Sphere Results Page 4

Distribution Results

Conditions / Summary of Results / Polar Plot / Zonal Lumens Page 5
Candela Tabulation / Average Luminance Page 6
Coefficients of Utilization / Cone of Light Page 7
ISOFootcandle Plot Page 8

In-Situ Results Page 9

Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 3-meter integrating sphere using the 4π geometry method.

Absorption correction was employed for Sphere measurement

Luminaire Description: Tested in A.L.P. EL 2x4 housing, white steel housing, prismatic lens enclosure
Lamp: 288 white LEDs
Mounting: Surface – Ceiling
Ballast/Driver: Philips X1054C150V054BSTI

Luminaire

Luminaire Characteristics

Luminous Length:	45.00	in.
Luminous Width:	21.00	in.

Summary of Results

Integrating Sphere

Luminous Flux:	4045	Lumens
Efficacy:	136.7	lm/w
CCT:	3108	K
CRI (Ra):	83.5	

Distribution

Total Luminaire Output:	3955	Lumens
Luminaire Efficacy:	133.3	lm/w
Maximum Candela:	1628	Candela

Electrical Data at 277 VAC

Test Temperature:	25.0	°C
Voltage:	277.0	VAC
Current:	0.1163	A
Power:	29.51	W
Power Factor:	0.915	
Frequency:	60	Hz
Current THD:	11.0	%

In-Situ

LED Temperature:	32.5	°C
Driver Temperature:	43.6	°C
Measured LED Current:	0.03100	A

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

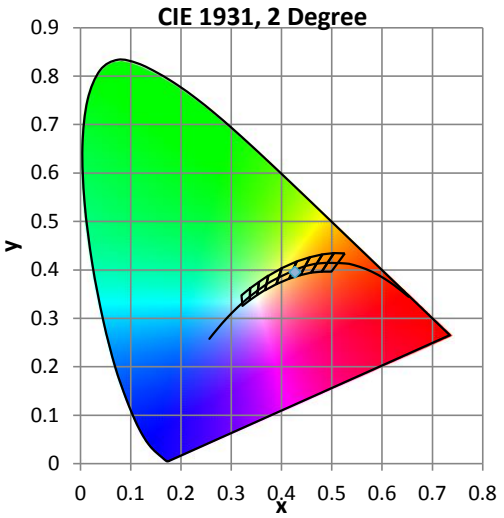
Color Quality - Integrating Sphere

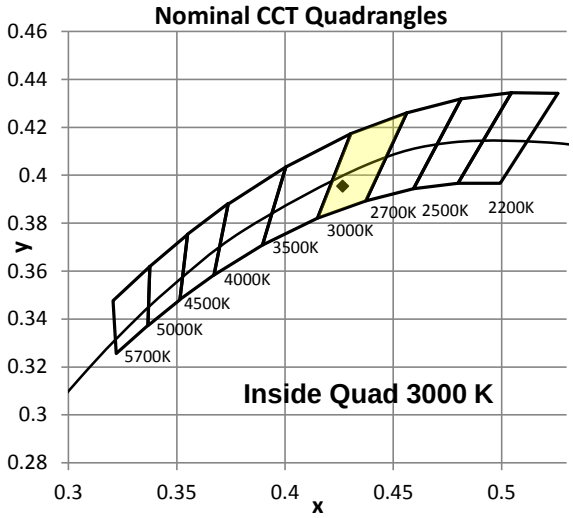
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.2502 A	29.59 W	0.986	60 Hz	7.66 %

Summary of Results

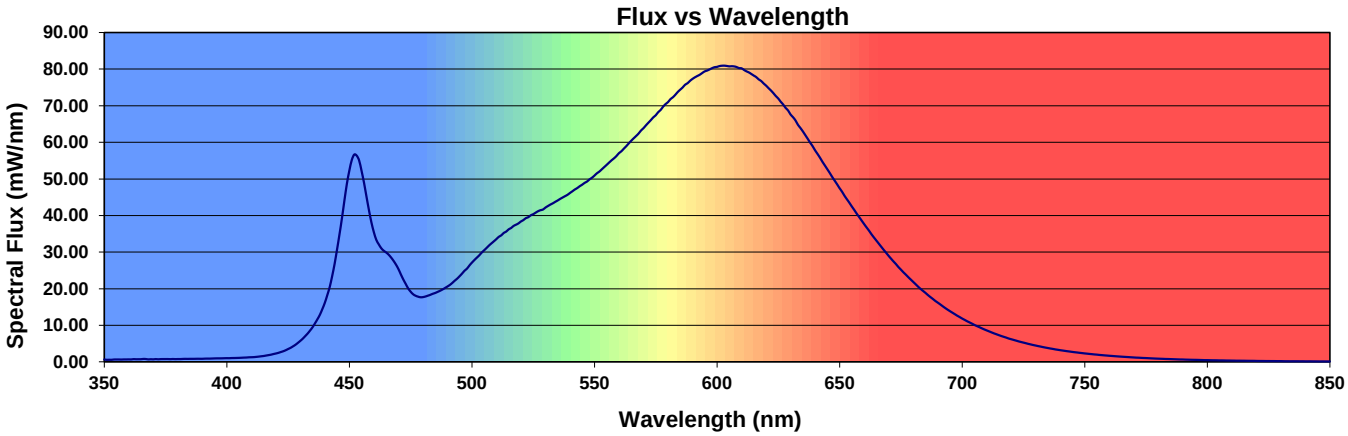
Total Output:	4045	Lumens	**Chromaticity (x):**	0.4266
Efficacy:	136.7	lm/w	**Chromaticity (y):**	0.3954
CCT:	3108	K	**Chromaticity (u'):**	0.2476
CRI (Ra):	83.5		**Chromaticity (v'):**	0.5164
CRI (R9):	12.1		**TM-30 R_f:**	83.0
Peak Wavelength:	602.7	nm	**TM-30 R_g:**	96.2
Dominant Wavelength:	583.1	nm	**Duv:**	-0.0025
S/P Ratio:	1.411			





Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.5	82.5	92.4	95.7	80.9	82.7	90.2	82.7	60.9	12.1	82.1	80.0	71.6	85.1	98.5



Distribution - Goniophotometer

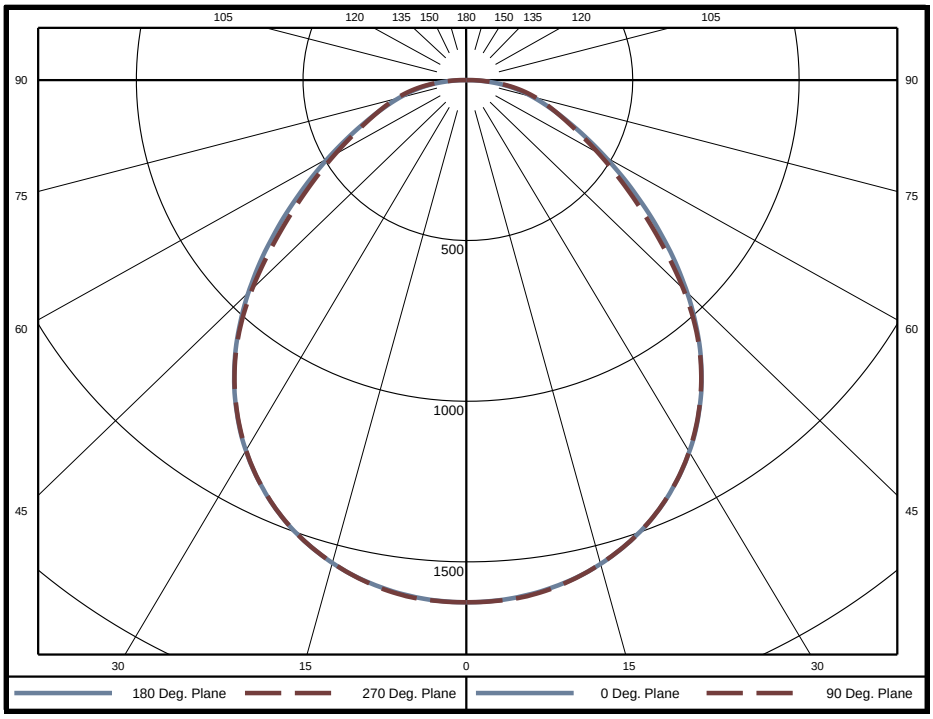
Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.3 °C	120.0 VAC	0.2483 A	29.66 W	0.995	60 Hz	7.63 %

Summary of Results

Spacing Criteria			
0-180: 1.22	**Total Lumen Output:**	3955	Lumens
90-270: 1.22	**Luminaire Efficacy:**	133.3	lm/w
	Maximum Candela:	1628	Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	38.8	1.0%	60-65	201.3	5.1%	120-125	0	0.0%
5-10	115.2	2.9%	65-70	160.4	4.1%	125-130	0	0.0%
10-15	187.5	4.7%	70-75	126.9	3.2%	130-135	0	0.0%
15-20	252.7	6.4%	75-80	96.8	2.4%	135-140	0	0.0%
20-25	308.1	7.8%	80-85	62.4	1.6%	140-145	0	0.0%
25-30	350.5	8.9%	85-90	24.4	0.6%	145-150	0	0.0%
30-35	377.3	9.5%	90-95	0	0.0%	150-155	0	0.0%
35-40	386.0	9.8%	95-100	0	0.0%	155-160	0	0.0%
40-45	374.7	9.5%	100-105	0	0.0%	160-165	0	0.0%
45-50	343.8	8.7%	105-110	0	0.0%	165-170	0	0.0%
50-55	298.6	7.5%	110-115	0	0.0%	170-175	0	0.0%
55-60	249.0	6.3%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	2016	51.0%
0-60	3282	83.0%
0-90	3954	100.0%
90-180	0	0.0%

Candela Tabulation

Horizontal Angle (Degrees)

Vertical 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	1626	1626	1626	1626	1626	1626	1626	1626	1626	1626	1626	1626	1626	1626	1626	1626
5	1619	1617	1622	1622	1621	1622	1622	1617	1619	1617	1622	1622	1621	1622	1622	1617
10	1597	1597	1602	1600	1599	1600	1602	1597	1597	1597	1602	1600	1599	1600	1602	1597
15	1560	1561	1563	1560	1559	1560	1563	1561	1560	1561	1563	1560	1559	1560	1563	1561
20	1505	1506	1505	1505	1505	1505	1505	1506	1505	1506	1505	1505	1505	1505	1505	1506
25	1433	1431	1430	1431	1432	1431	1430	1431	1433	1431	1430	1431	1432	1431	1430	1431
30	1340	1336	1336	1338	1340	1338	1336	1336	1340	1336	1336	1338	1340	1338	1336	1336
35	1228	1222	1222	1224	1226	1224	1222	1222	1228	1222	1222	1224	1226	1224	1222	1222
40	1095	1088	1086	1087	1092	1087	1086	1088	1095	1088	1086	1087	1092	1087	1086	1088
45	943	940	935	929	927	929	935	940	943	940	935	929	927	929	935	940
50	781	781	774	753	748	753	774	781	781	781	774	753	748	753	774	781
55	626	624	612	595	592	595	612	624	626	624	612	595	592	595	612	624
60	489	481	469	464	464	464	469	481	489	481	469	464	464	464	469	481
65	374	365	354	360	361	360	354	365	374	365	354	360	361	360	354	365
70	283	275	267	281	284	281	267	275	283	275	267	281	284	281	267	275
75	211	208	205	217	222	217	205	208	211	208	205	217	222	217	205	208
80	147	145	146	153	157	153	146	145	147	145	146	153	157	153	146	145
85	76	75	79	84	84	84	79	75	76	75	79	84	84	84	79	75
90	7	11	16	20	19	20	16	11	7	11	16	20	19	20	16	11
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^2)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)

	0	45	90
0	2667	2667	2667
45	2188	2170	2150
55	1789	1750	1692
65	1451	1374	1401
75	1337	1296	1404
85	1435	1482	1576

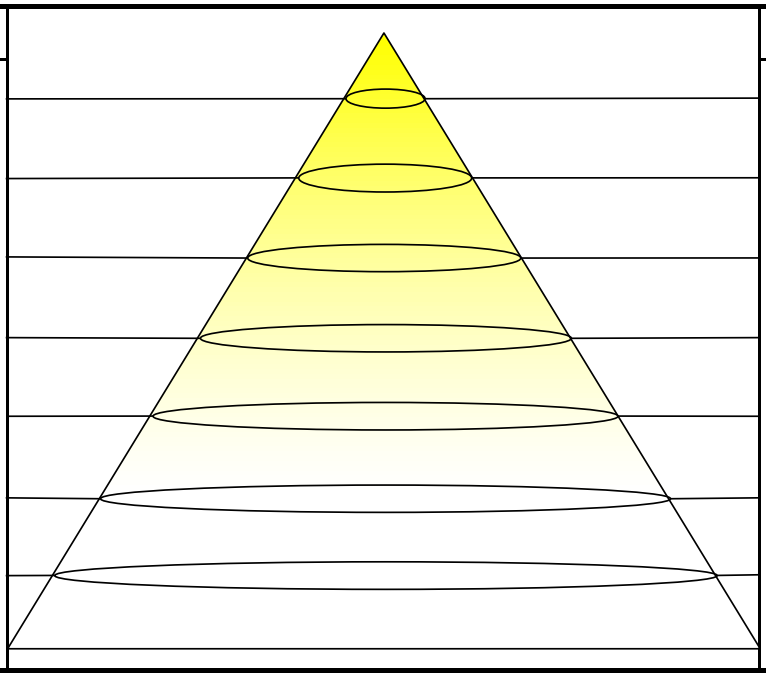
Utilization of Lumens - Zonal Cavity Method

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	4708	4708	4708	4708	4598	4598	4598	4598	4394	4394	4394	4207	4207	4207	4035	4035	4035	3955
1	4321	4141	3979	3834	4215	4052	3904	3771	3884	3763	3652	3730	3632	3541	3588	3509	3436	3354
2	3956	3646	3390	3174	3854	3572	3336	3136	3433	3235	3064	3305	3139	2994	3186	3050	2928	2845
3	3628	3231	2924	2680	3532	3170	2885	2656	3053	2810	2609	2946	2738	2564	2846	2671	2521	2437
4	3339	2886	2554	2301	3250	2834	2524	2285	2736	2467	2254	2645	2412	2224	2561	2360	2194	2111
5	3083	2595	2255	2003	3002	2552	2232	1993	2469	2187	1971	2392	2145	1950	2321	2104	1930	1848
6	2857	2350	2009	1765	2783	2313	1991	1757	2242	1956	1742	2177	1922	1727	2116	1889	1712	1634
7	2656	2140	1805	1571	2589	2108	1791	1565	2048	1762	1554	1992	1735	1543	1939	1708	1532	1456
8	2478	1960	1634	1410	2417	1933	1622	1406	1881	1599	1398	1833	1576	1389	1787	1555	1381	1308
9	2319	1804	1489	1276	2264	1781	1479	1272	1736	1460	1266	1694	1441	1260	1654	1423	1253	1183
10	2177	1668	1364	1162	2127	1648	1356	1159	1610	1340	1154	1573	1325	1149	1538	1309	1144	1077

Beam and Field Information

CIE Type:	Direct
Center Beam Intenisty:	1626 Candela
Central Cone Intensity:	1624 Candela
Beam Flux:	2650.1 Lumens
Beam Angle (0-180):	98.1 Degrees
Beam Angle (90-270):	96.3 Degrees
Field Angle (0-180):	157.6 Degrees
Field Angle (90-270):	159.2 Degrees

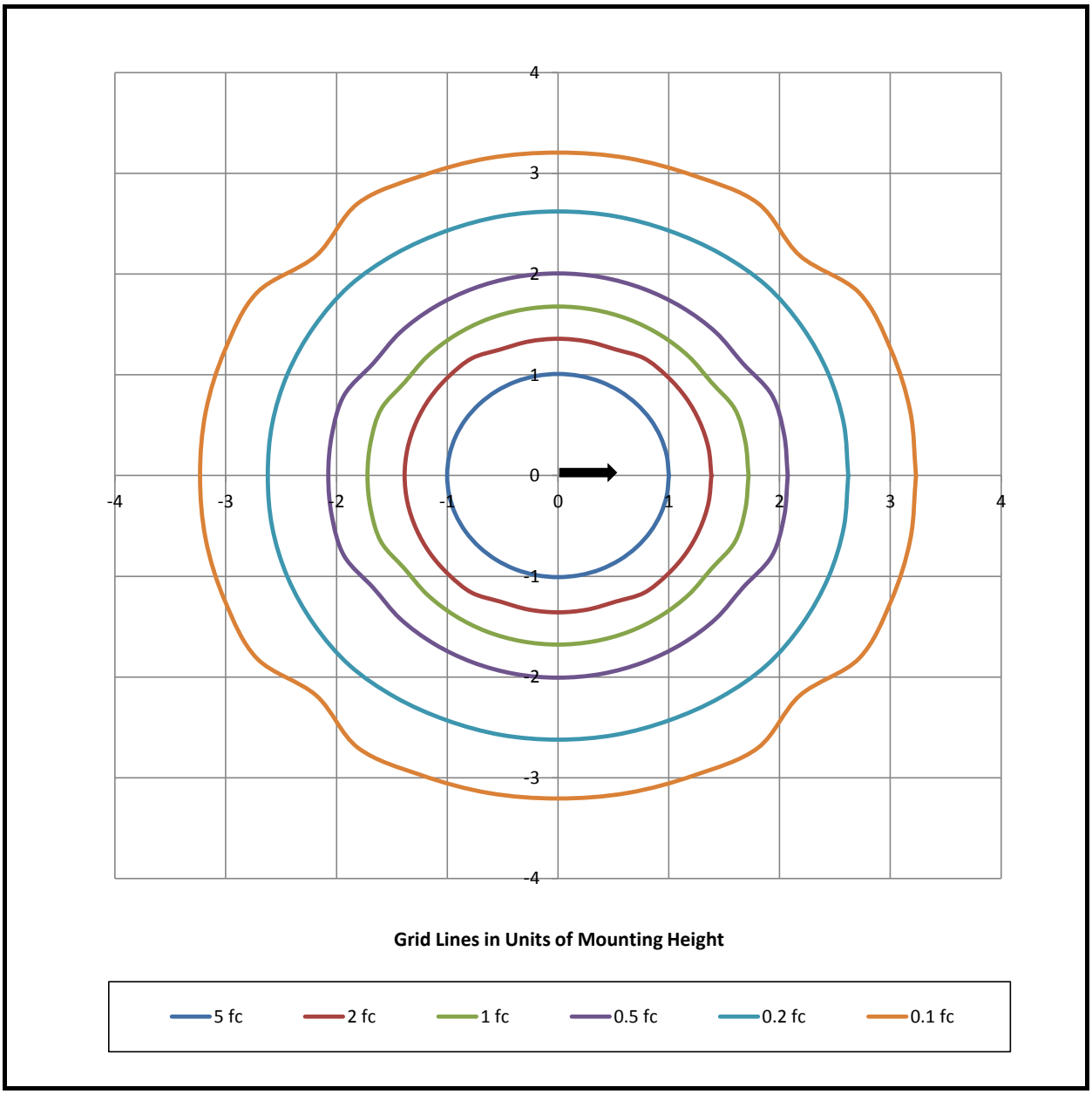
Cone of Light Tabulation



Mounting Height (Feet)	Footcandles at Nadir	Diameter (Feet)
4.00	102	4.88
6.00	45.2	7.33
8.00	25.4	9.77
10.0	16.3	12.2
12.0	11.3	14.7
14.0	8.30	17.1
16.0	6.35	19.5

ISOFootcandle Plot

Mounting Height - 8 Feet



In-Situ Test

In-Situ Test Conditions

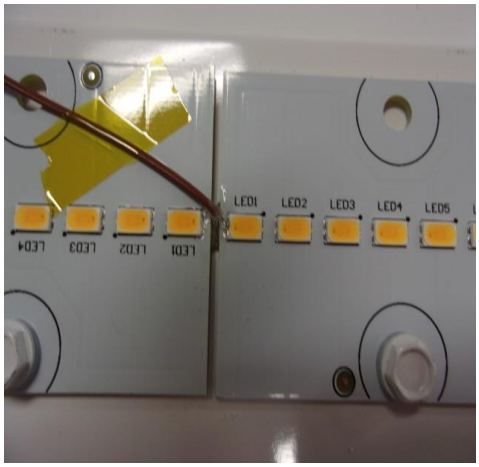
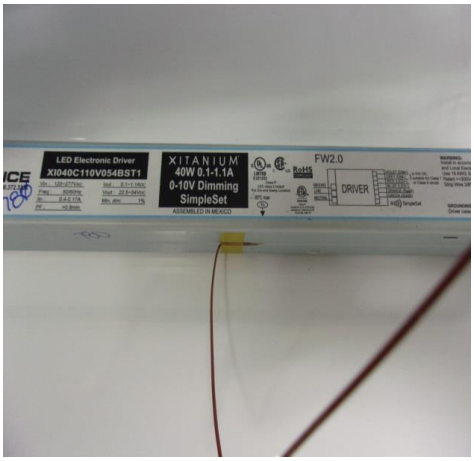
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.0 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

LED Temperature:	32.5	°C
Driver Temperature:	43.6	°C
Measured LED Current:	0.03100	A

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

LED Temperature Location



Driver Temperature Location