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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
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Catalog Number
LE481-73-V1-A-5
Order Number
11304304
Test Number
1260402

Test Date

2016-06-11

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 3-meter integrating sphere using the 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: White steel enamel housing, white steel reflector, frosted plastic lens with clear glass lens enclosure
Lamp: 80 White LEDs
Mounting: Recessed
Ballast/Driver: Thomas Research Products PLED75W-054-C1400

Luminaire



Luminaire Characteristics
Luminous Length: 48.00 in.
Luminous Width: 7.375 in.

Summary of Results

Integrating Sphere

Luminous Flux: 7456 Lumens
Efficacy: 104.6 lm/w
CCT: 5290 K
CRI (Ra): 84.3

Distribution

Total Luminaire Output: 7321 Lumens
Luminaire Efficacy: 102.7 lm/w
Maximum Candela: 2797 Candela

Electrical Data at 277 VAC

Test Temperature: 25.7 °C
Voltage: 277.0 VAC
Current: 0.2703 A
Power: 70.19 W
Power Factor: 0.938
Frequency: 60 Hz
Current THD: 15.0 %

In-Situ

LED Temperature: 51.2 °C
Driver Temperature: 55.8 °C
Measured LED Current: 0.07020 A

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



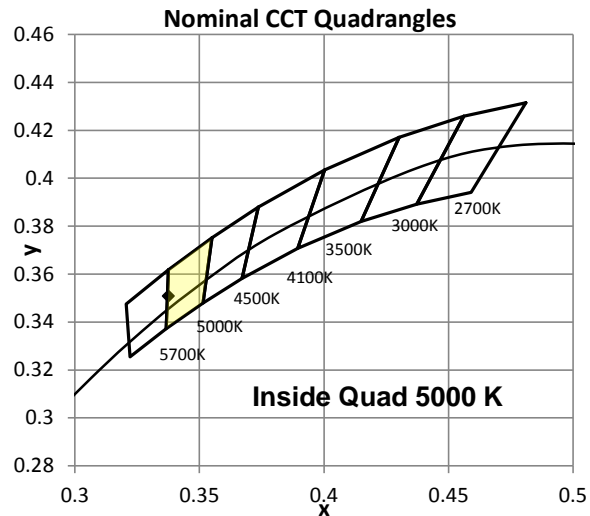
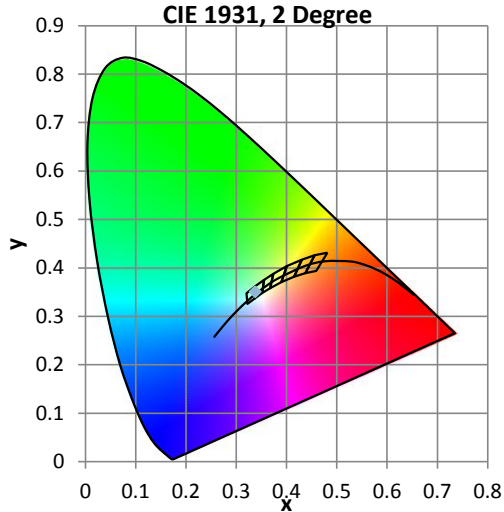
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.7 °C	120.0 VAC	0.5969 A	71.28 W	0.995	60 Hz	6.08 %

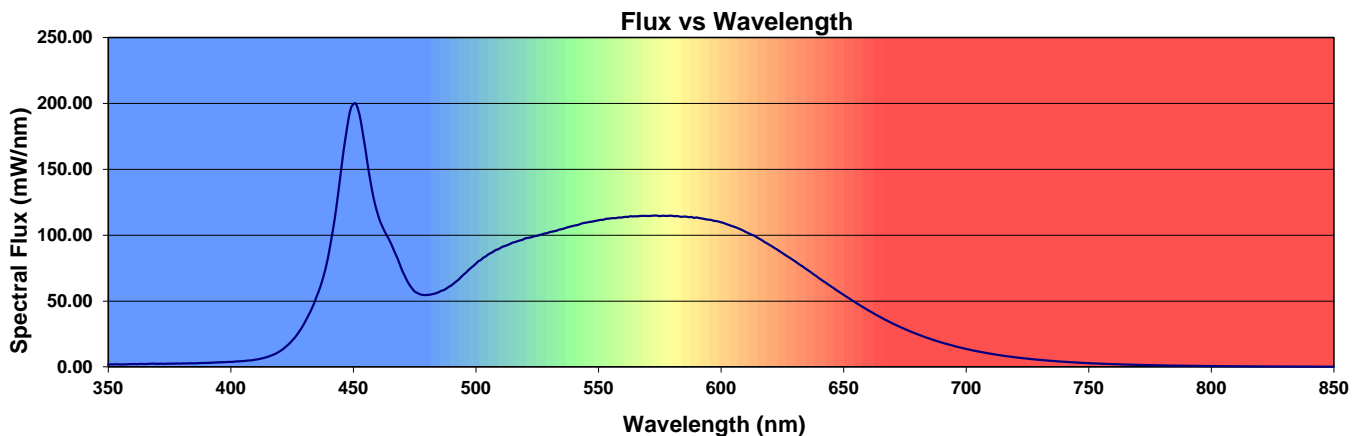
Summary of Results

Total Output:	7456 Lumens	Chromaticity (x):	0.3376
Efficacy:	104.6 lm/w	Chromaticity (y):	0.3508
CCT:	5290 K	Chromaticity (u'):	0.2066
CRI (Ra):	84.3	Chromaticity (v'):	0.4832
CRI (R9):	13.8	TM-30 R_f:	83.1
Peak Wavelength:	450.4 nm	TM-30 R_g:	95.7
Dominant Wavelength:	563.6 nm	Duv:	0.0023
S/P Ratio:	2.037		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
84.3	82.6	89.1	93.0	84.1	83.4	84.4	88.0	69.9	13.8	73.7	83.4	64.6	84.3	96.3





Distribution - Goniophotometer

Distribution Test Conditions

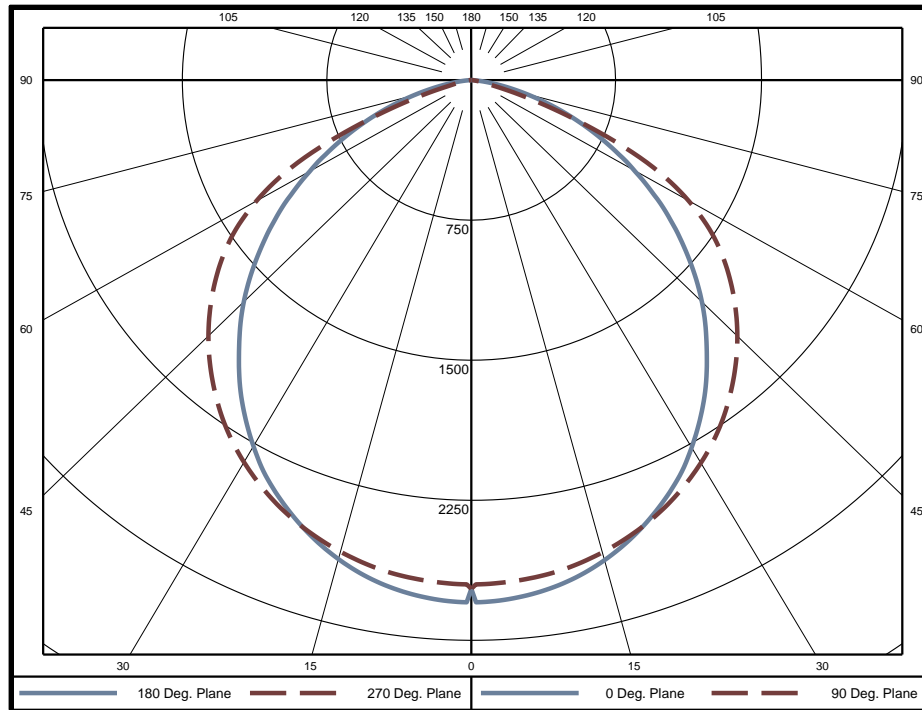
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	120.0 VAC	0.5969 A	71.29 W	0.995	60 Hz	6.09 %

Summary of Results

Spacing Criteria
 0-180: 1.24
 90-270: 1.24

Total Lumen Output: 7321 Lumens
Luminaire Efficacy: 102.7 lm/w
Maximum Candela: 2797 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	65.0	0.9%	60-65	501.0	6.8%	120-125	0	0.0%
5-10	192.8	2.6%	65-70	369.6	5.0%	125-130	0	0.0%
10-15	314.1	4.3%	70-75	216.8	3.0%	130-135	0	0.0%
15-20	424.7	5.8%	75-80	91.6	1.3%	135-140	0	0.0%
20-25	520.9	7.1%	80-85	26.0	0.4%	140-145	0	0.0%
25-30	599.7	8.2%	85-90	4.0	0.1%	145-150	0	0.0%
30-35	657.8	9.0%	90-95	0	0.0%	150-155	0	0.0%
35-40	693.0	9.5%	95-100	0	0.0%	155-160	0	0.0%
40-45	704.4	9.6%	100-105	0	0.0%	160-165	0	0.0%
45-50	691.7	9.4%	105-110	0	0.0%	165-170	0	0.0%
50-55	654.9	8.9%	110-115	0	0.0%	170-175	0	0.0%
55-60	593.2	8.1%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	3468	47.4%
0-60	6112	83.5%
0-90	7321	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	2725	2725	2725	2725	2725	2725	2725	2725	2725	2725	2725	2725	2725	2725	2725	2725
5	2781	2728	2694	2694	2691	2694	2694	2728	2781	2728	2694	2694	2691	2694	2694	2728
10	2737	2686	2658	2665	2665	2665	2658	2686	2737	2686	2658	2665	2665	2665	2658	2686
15	2663	2617	2600	2614	2618	2614	2600	2617	2663	2617	2600	2614	2618	2614	2600	2617
20	2560	2520	2518	2545	2553	2545	2518	2520	2560	2520	2518	2545	2553	2545	2518	2520
25	2434	2401	2416	2457	2470	2457	2416	2401	2434	2401	2416	2457	2470	2457	2416	2401
30	2279	2262	2294	2348	2367	2348	2294	2262	2279	2262	2294	2348	2367	2348	2294	2262
35	2099	2094	2153	2221	2245	2221	2153	2094	2099	2094	2153	2221	2245	2221	2153	2094
40	1898	1909	1993	2072	2100	2072	1993	1909	1898	1909	1993	2072	2100	2072	1993	1909
45	1692	1712	1813	1904	1939	1904	1813	1712	1692	1712	1813	1904	1939	1904	1813	1712
50	1464	1502	1615	1720	1759	1720	1615	1502	1464	1502	1615	1720	1759	1720	1615	1502
55	1230	1285	1405	1517	1557	1517	1405	1285	1230	1285	1405	1517	1557	1517	1405	1285
60	981	1049	1186	1280	1294	1280	1186	1049	981	1049	1186	1280	1294	1280	1186	1049
65	746	819	945	967	915	967	945	819	746	819	945	967	915	967	945	819
70	519	592	671	529	446	529	671	592	519	592	671	529	446	529	671	592
75	310	376	323	170	130	170	323	376	310	376	323	170	130	170	323	376
80	142	170	61	49	45	49	61	170	142	170	61	49	45	49	61	170
85	34	18	12	13	13	13	12	18	34	18	12	13	13	13	12	18
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)

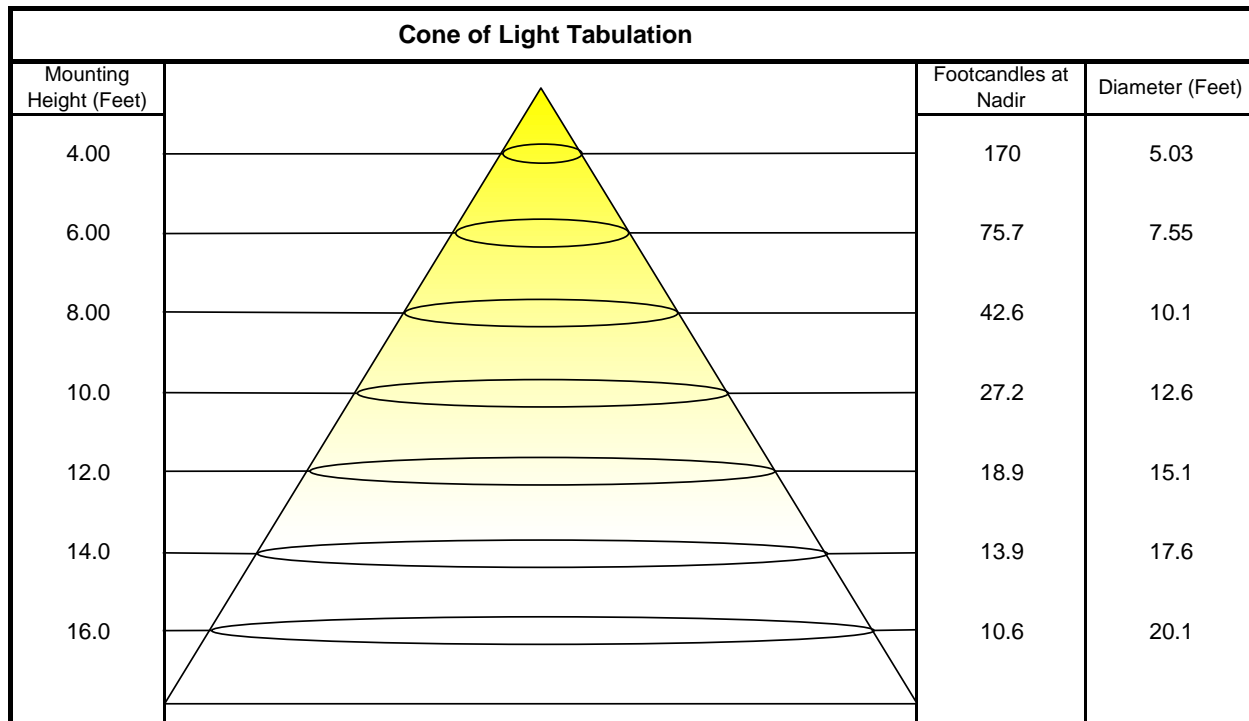
Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	11930	11930	11930
45	10480	11220	12010
55	9390	10730	11880
65	7724	9791	9483
75	5244	5463	2190
85	1700	595	660



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	8716	8716	8716	8716	8513	8513	8513	8513	8135	8135	8135	7789	7789	7789	7471	7471	7471	7321
1	8038	7720	7435	7178	7842	7555	7296	7061	7247	7034	6839	6963	6791	6631	6702	6564	6435	6286
2	7341	6774	6305	5910	7153	6637	6206	5840	6380	6018	5705	6144	5841	5576	5925	5675	5453	5300
3	6707	5969	5398	4943	6529	5854	5325	4898	5639	5185	4812	5439	5053	4729	5254	4928	4649	4493
4	6145	5296	4675	4200	5980	5200	4619	4170	5018	4513	4113	4849	4412	4058	4692	4315	4004	3849
5	5653	4735	4094	3620	5501	4654	4051	3600	4500	3968	3561	4356	3889	3523	4222	3814	3485	3333
6	5220	4263	3622	3161	5081	4194	3588	3147	4063	3523	3119	3941	3460	3092	3826	3399	3065	2917
7	4839	3865	3234	2792	4713	3806	3207	2782	3694	3154	2761	3589	3103	2741	3490	3054	2721	2578
8	4503	3526	2912	2490	4389	3475	2890	2482	3379	2847	2467	3288	2805	2452	3203	2765	2437	2299
9	4206	3235	2641	2240	4103	3192	2623	2234	3108	2587	2222	3030	2553	2210	2956	2519	2199	2066
10	3942	2985	2411	2030	3849	2947	2396	2025	2874	2366	2016	2806	2337	2007	2741	2309	1998	1871

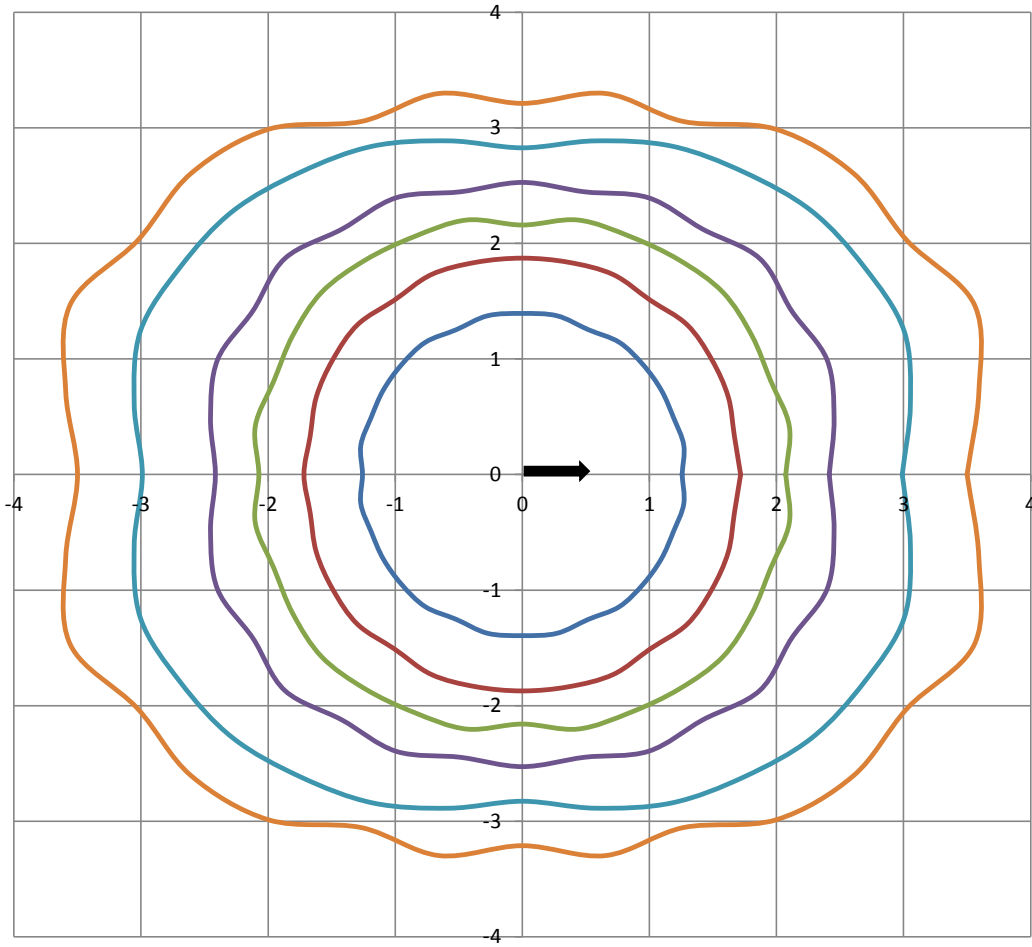
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	2725 Candela
Central Cone Intensity:	2721 Candela
Beam Flux:	5634.7 Lumens
Beam Angle (0-180):	104.4 Degrees
Beam Angle (90-270):	117.7 Degrees
Field Angle (0-180):	152.0 Degrees
Field Angle (90-270):	144.8 Degrees





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height





In-Situ Test

In-Situ Test Conditions

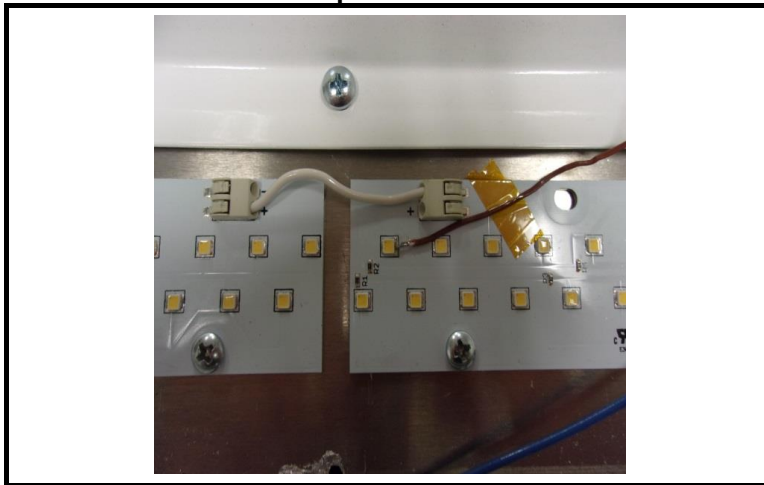
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
22.8 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

LED Temperature: 51.2 °C
Driver Temperature: 55.8 °C
Measured LED Current: 0.07020 A

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

LED Temperature Location



Driver Temperature Location

