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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
LE481-218-V1-A-5
Order Number
11304304
Test Number
1260401

Test Date

2016-06-13

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: 480 White LEDs
Mounting: Recessed
Ballast/Driver: Three Thomas Research Products PLED75W-054-C1400

Luminaire



Luminaire Characteristics
Luminous Length: 48.00 in.
Luminous Width: 17.38 in.

Summary of Results

Integrating Sphere

Luminous Flux: 22580 Lumens
Efficacy: 106.2 lm/w
CCT: 5454 K
CRI (Ra): 85.7

Distribution

Total Luminaire Output: 21950 Lumens
Luminaire Efficacy: 103.2 lm/w
Maximum Candela: 8083 Candela

Electrical Data at 277 VAC

Test Temperature: 24.3 °C
Voltage: 277.0 VAC
Current: 0.8093 A
Power: 210.6 W
Power Factor: 0.939
Frequency: 60 Hz
Current THD: 14.7 %

In-Situ

LED Temperature: 76.7 °C
Driver Temperature: 71.1 °C
Measured LED Current: 0.06952 A

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



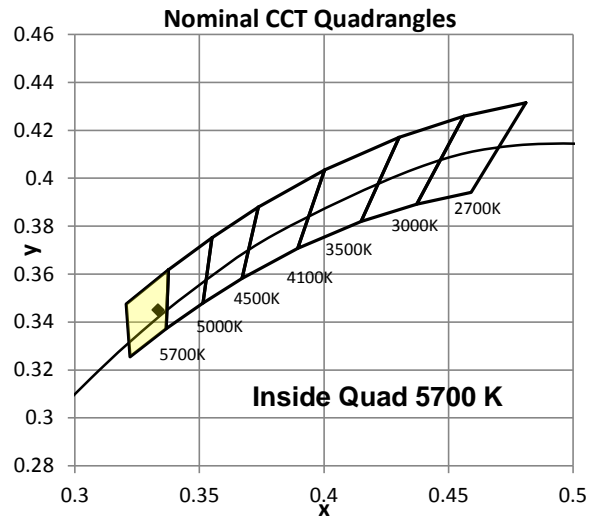
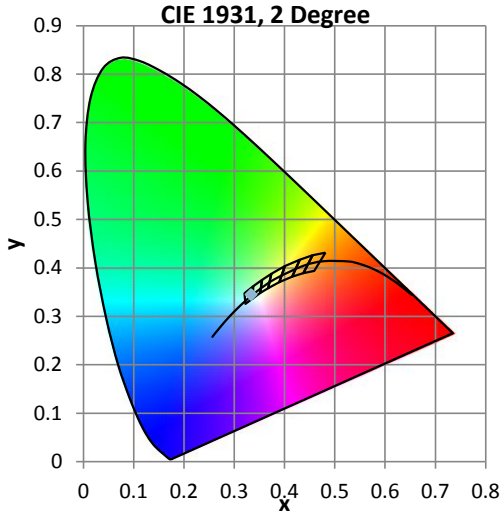
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.1 VAC	1.777 A	212.6 W	0.995	60 Hz	5.97 %

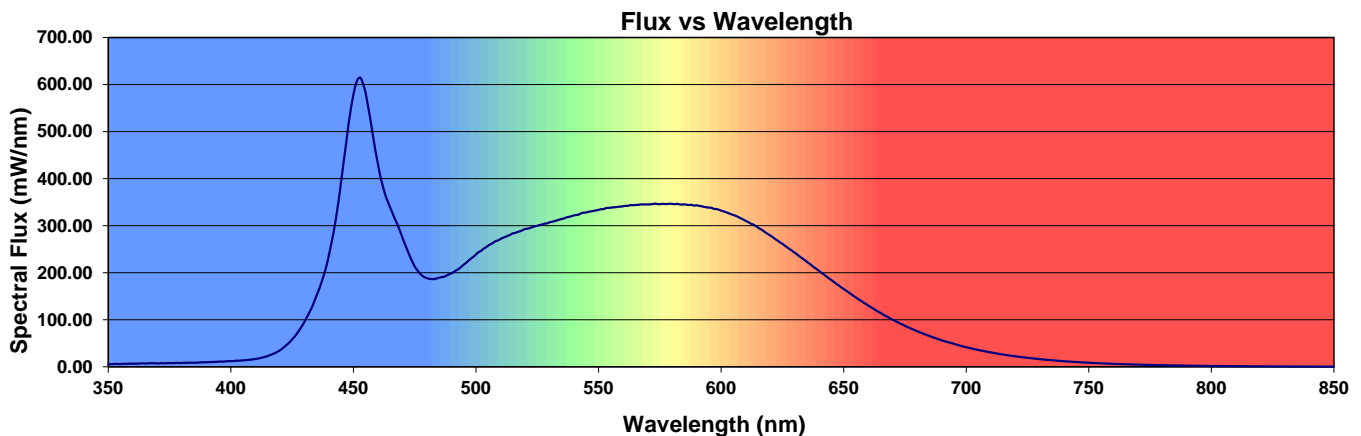
Summary of Results

Total Output:	22580 Lumens	Chromaticity (x):	0.3334
Efficacy:	106.2 lm/w	Chromaticity (y):	0.3450
CCT:	5454 K	Chromaticity (u'):	0.2061
CRI (Ra):	85.7	Chromaticity (v'):	0.4797
CRI (R9):	19.7	TM-30 R_f:	83.6
Peak Wavelength:	452.6 nm	TM-30 R_g:	95.2
Dominant Wavelength:	554.4 nm	Duv:	0.0014
S/P Ratio:	2.101		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
85.7	84.6	91.4	94.4	84.5	84.8	86.6	88.2	71.4	19.7	78.5	83.8	65.5	86.7	97.2





Distribution - Goniophotometer

Distribution Test Conditions

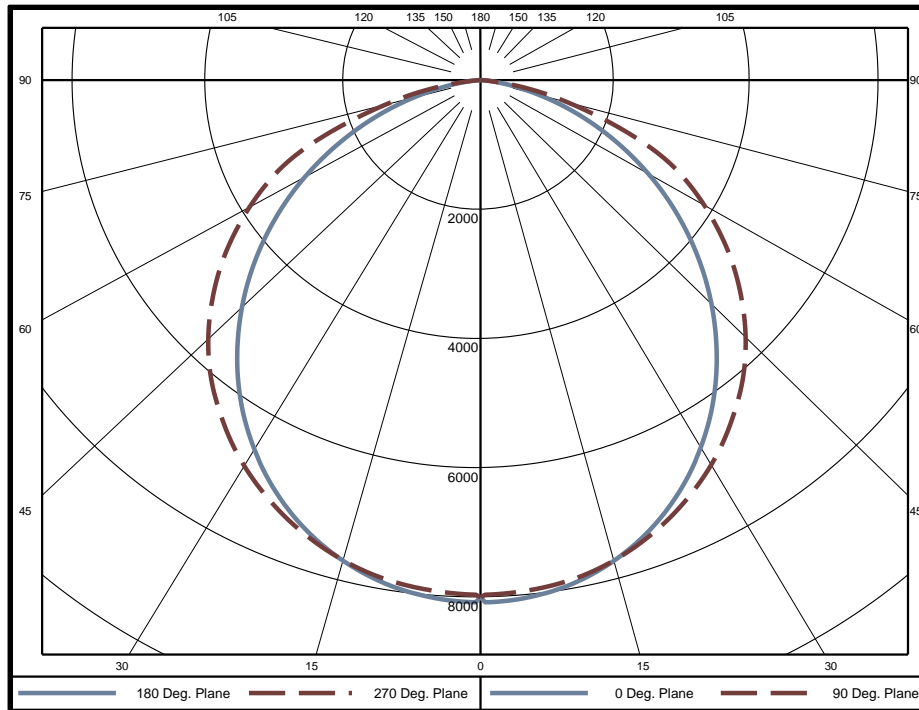
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	120.0 VAC	1.780 A	212.8 W	0.995	60 Hz	6.00 %

Summary of Results

Spacing Criteria
 0-180: 1.22
 90-270: 1.22

Total Lumen Output: 21950 Lumens
Luminaire Efficacy: 103.2 lm/w
Maximum Candela: 8083 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	191	0.9%	60-65	1476	6.7%	120-125	0	0.0%
5-10	566	2.6%	65-70	1194	5.4%	125-130	0	0.0%
10-15	922	4.2%	70-75	843	3.8%	130-135	0	0.0%
15-20	1246	5.7%	75-80	485	2.2%	135-140	0	0.0%
20-25	1524	6.9%	80-85	187	0.9%	140-145	0	0.0%
25-30	1750	8.0%	85-90	26	0.1%	145-150	0	0.0%
30-35	1913	8.7%	90-95	0	0.0%	150-155	0	0.0%
35-40	2010	9.2%	95-100	0	0.0%	155-160	0	0.0%
40-45	2038	9.3%	100-105	0	0.0%	160-165	0	0.0%
45-50	1994	9.1%	105-110	0	0.0%	165-170	0	0.0%
50-55	1883	8.6%	110-115	0	0.0%	170-175	0	0.0%
55-60	1707	7.8%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	10122	46.1%
0-60	17744	80.8%
0-90	21955	100.0%
90-180	0	0.0%



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	8005	8005	8005	8005	8005	8005	8005	8005	8005	8005	8005	8005	8005	8005	8005	8005
5	8041	8005	7941	7938	7932	7938	7941	8005	8041	8005	7941	7938	7932	7938	7941	8005
10	7918	7888	7834	7847	7849	7847	7834	7888	7918	7888	7834	7847	7849	7847	7834	7888
15	7705	7686	7660	7689	7694	7689	7660	7686	7705	7686	7660	7689	7694	7689	7660	7686
20	7411	7408	7407	7457	7474	7457	7407	7408	7411	7408	7407	7457	7474	7457	7407	7408
25	7036	7054	7084	7168	7198	7168	7084	7054	7036	7054	7084	7168	7198	7168	7084	7054
30	6584	6629	6695	6824	6874	6824	6695	6629	6584	6629	6695	6824	6874	6824	6695	6629
35	6073	6129	6249	6430	6492	6430	6249	6129	6073	6129	6249	6430	6492	6430	6249	6129
40	5501	5576	5757	5983	6072	5983	5757	5576	5501	5576	5757	5983	6072	5983	5757	5576
45	4888	4974	5213	5490	5584	5490	5213	4974	4888	4974	5213	5490	5584	5490	5213	4974
50	4246	4344	4645	4938	5040	4938	4645	4344	4246	4344	4645	4938	5040	4938	4645	4344
55	3580	3693	4022	4336	4457	4336	4022	3693	3580	3693	4022	4336	4457	4336	4022	3693
60	2902	3030	3368	3706	3835	3706	3368	3030	2902	3030	3368	3706	3835	3706	3368	3030
65	2222	2377	2703	3053	3171	3053	2703	2377	2222	2377	2703	3053	3171	3053	2703	2377
70	1565	1720	2065	2272	2268	2272	2065	1720	1565	1720	2065	2272	2268	2272	2065	1720
75	948	1083	1353	1365	1365	1365	1353	1083	948	1083	1353	1365	1365	1365	1353	1083
80	443	570	624	659	656	659	624	570	443	570	624	659	656	659	624	570
85	117	150	144	123	116	123	144	150	117	150	144	123	116	123	144	150
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)

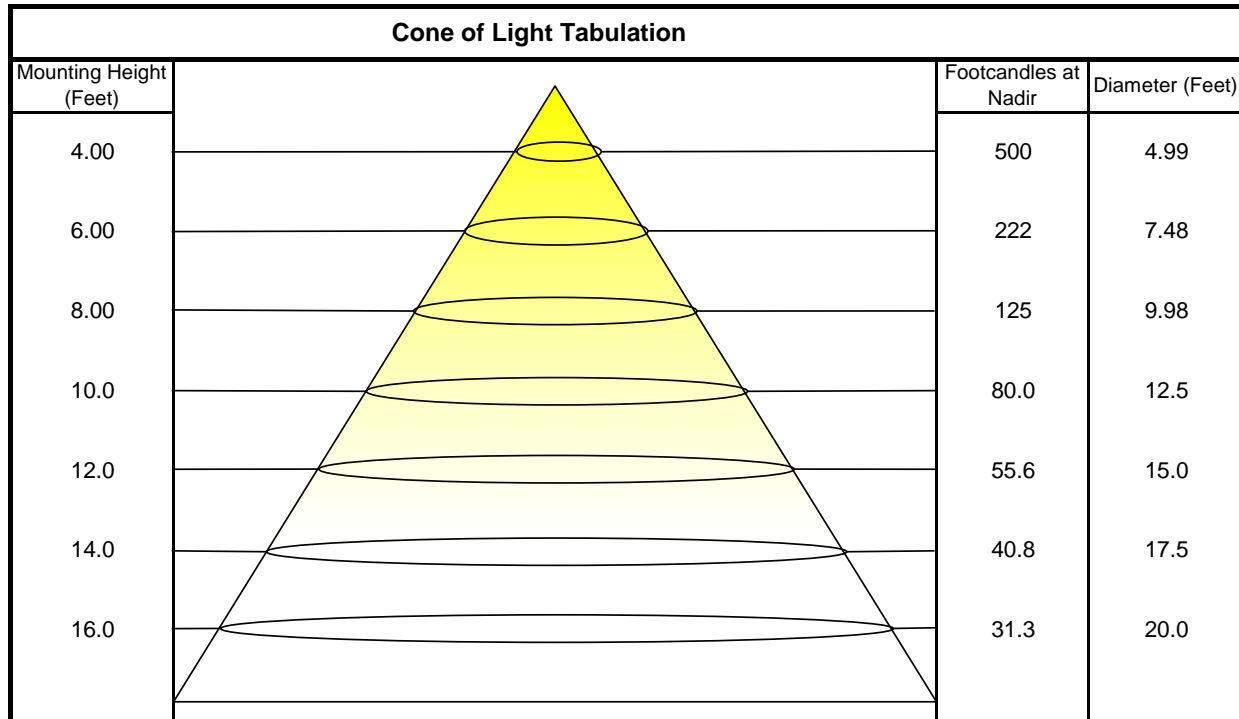
	0	45	90
0	14880	14880	14880
45	12850	13700	14680
55	11600	13030	14440
65	9770	11890	13950
75	6806	9718	9804
85	2493	3059	2469



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	26136	26136	26136	26136	25529	25529	25529	25529	24394	24394	24394	23356	23356	23356	22403	22403	22403	21955
1	23983	22977	22076	21265	23389	22480	21661	20918	21550	20876	20258	20696	20147	19639	19908	19468	19056	18602
2	21842	20076	18615	17386	21268	19662	18319	17178	18886	17755	16778	18170	17226	16397	17507	16728	16032	15563
3	19924	17648	15887	14484	19383	17302	15669	14353	16650	15250	14098	16046	14854	13852	15486	14478	13615	13139
4	18246	15645	13740	12284	17744	15353	13574	12198	14803	13255	12029	14293	12951	11865	13818	12661	11705	11232
5	16781	13982	12027	10583	16320	13736	11898	10524	13271	11650	10408	12838	11413	10294	12433	11185	10183	9719
6	15497	12591	10640	9241	15077	12382	10539	9199	11986	10342	9116	11616	10153	9035	11270	9971	8955	8504
7	14368	11416	9503	8162	13988	11238	9421	8131	10900	9262	8070	10582	9109	8011	10285	8962	7952	7517
8	13375	10418	8558	7281	13031	10265	8492	7258	9974	8362	7212	9701	8237	7167	9444	8116	7123	6705
9	12496	9562	7765	6552	12185	9430	7710	6534	9179	7603	6499	8942	7499	6464	8719	7399	6430	6030
10	11716	8823	7093	5941	11434	8709	7047	5927	8491	6957	5899	8285	6871	5872	8090	6786	5845	5462

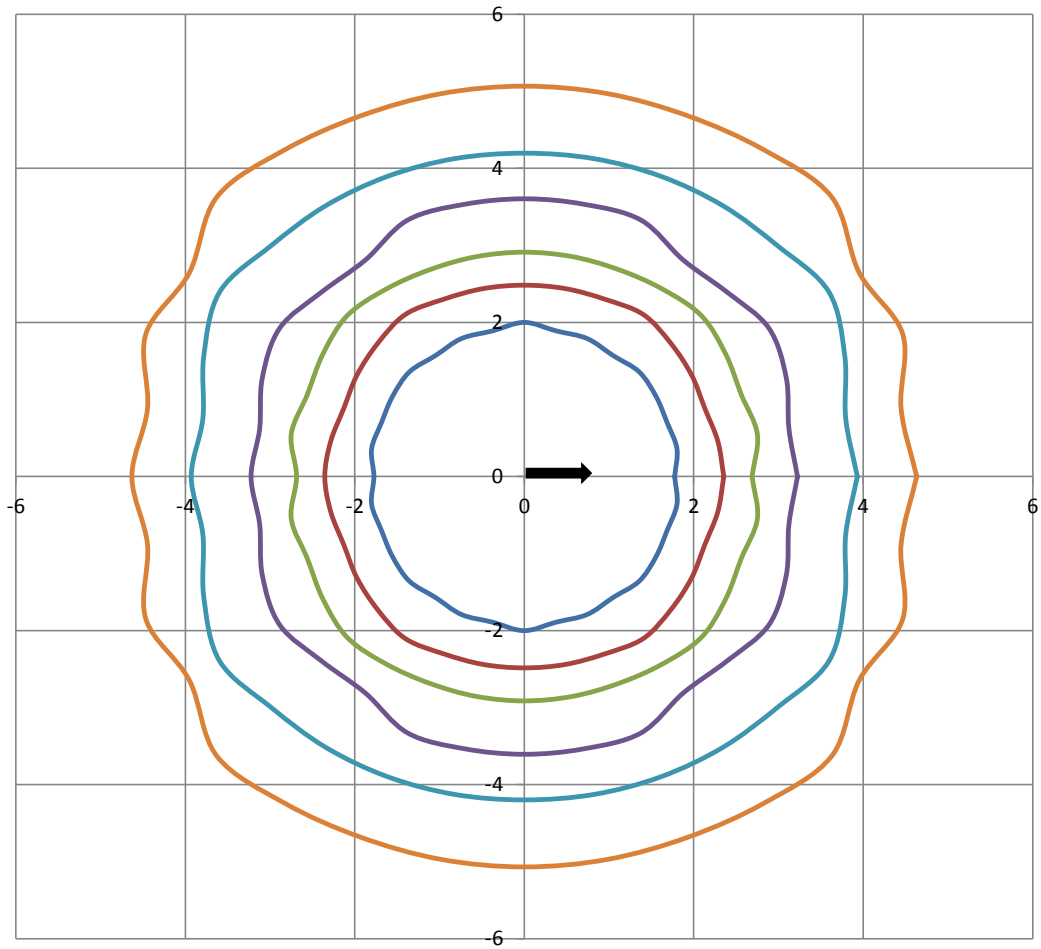
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	8005 Candela
Central Cone Intensity:	7991 Candela
Beam Flux:	16147.4 Lumens
Beam Angle (0-180):	103.7 Degrees
Beam Angle (90-270):	117.4 Degrees
Field Angle (0-180):	152.6 Degrees
Field Angle (90-270):	157.9 Degrees





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
22.9 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

LED Temperature: 76.7 °C
Driver Temperature: 71.1 °C
Measured LED Current: 0.06952 A

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

LED Temperature Location



Driver Temperature Location

