



UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
610-774-1300



Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002

Prepared For
Precision Architectural Lighting

Fred Compton
4830 Timber Creek Drive
Houston, TX 77017

Catalog Number
MLR3-MO-K40-4'-TT-LOH-UNIV (Lens B)

Order Number
10822132
Test Number
1094332

Test Date

2015-06-19 - 2015-06-22

Prepared By

Dane Hernandez-Adams, Technician

Approved By

Zachary Mooney, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.
This report shall not be reproduced, except in full, without written approval of Underwriters Laboratories.
This report must not be used by the client to claim product certification, approval, or endorsement by
NVLAP, NIST, or any agency of the Federal Government.



Table of Contents

Summary of Results	Page 3
Integrating Sphere Results	Page 4
Distribution Results	Page 5
Conditions / Summary of Results / Polar Plot / Zonal / Luminance	Page 5
Candela Tabulation	Page 6
Coefficients of Utilization	Page 7

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: Aluminum housing, white enamel aluminum reflector, frosted plastic lens
Lamp: 144 white LEDs
Mounting: Recessed
Ballast/Driver: Osram OT30W/PRG1050C/UNV/DIM/L

Luminaire



Luminaire Characteristics

Luminous Length: 47.00 in.
Luminous Width: 2.750 in.

Summary of Results

Integrating Sphere

Luminous Flux: 2006 Lumens
Efficacy: 96.9 lm/w
CCT: 3980 K
CRI (Ra): 83.8

Distribution

Total Luminaire Output: 1956 Lumens
Luminaire Efficacy: 94.8 lm/w
Maximum Candela: 853 Candela

Electrical Data at 120 VAC

Test Temperature: 25.1 °C
Voltage: 120.0 VAC
Current: 0.1735 A
Power: 20.70 W
Power Factor: 0.994
Frequency: 60 Hz
Current THD: 6.07 %



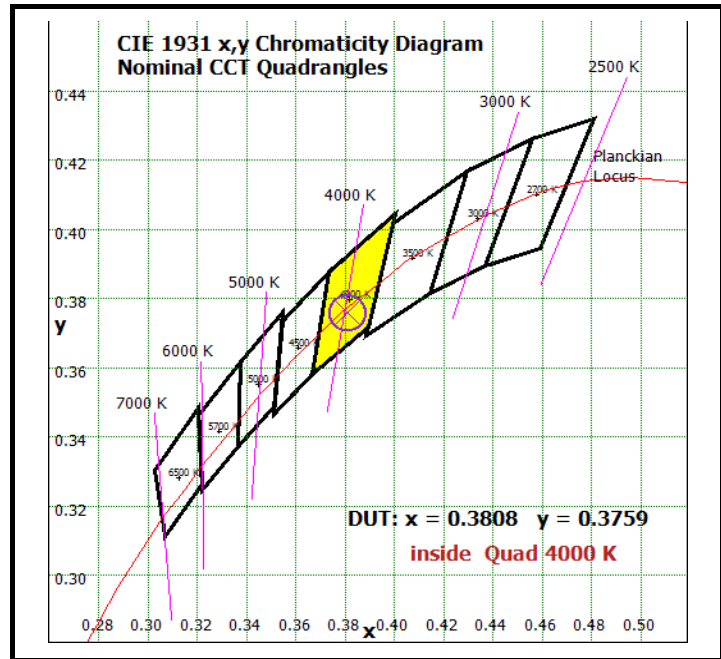
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.1 °C	120.0 VAC	0.1735 A	20.70 W	0.994	60 Hz	6.07 %

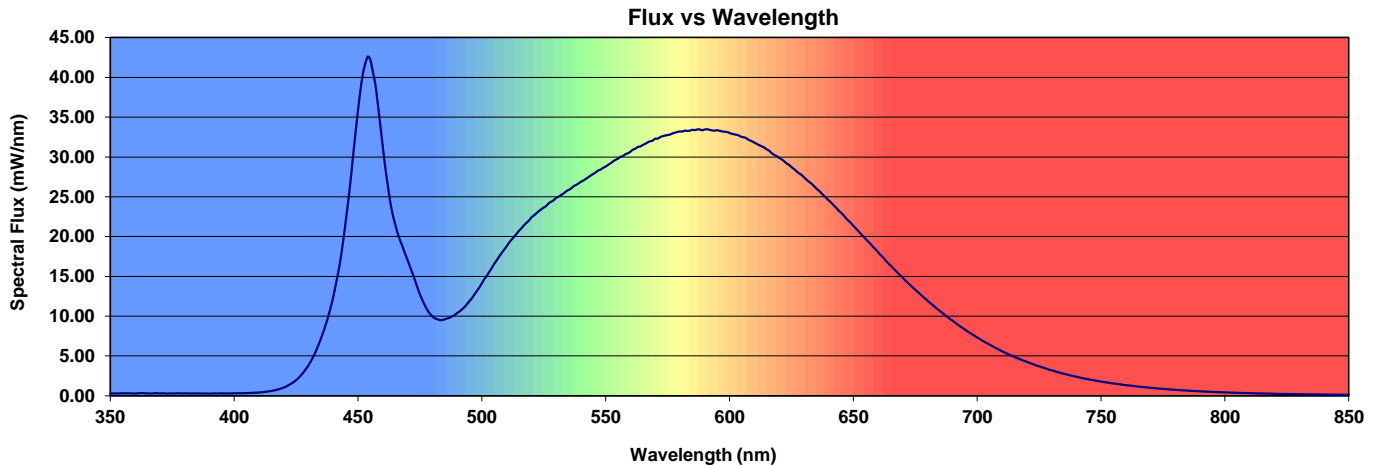
Summary of Results

Total Output:	2006 Lumens
Efficacy:	96.9 lm/w
CCT:	3980 K
CRI (Ra):	83.8
CRI (R9):	24.9
Chromaticity (x):	0.3808
Chromaticity (y):	0.3759
Chromaticity (u):	0.2257
Chromaticity (v):	0.3342
Chromaticity (u')	0.2257
Chromaticity (v')	0.5012
Duv:	-0.0006



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.8	82.5	89.6	93.3	81.3	81.4	83.7	88.3	70.6	24.9	73.7	78.5	56.7	84.2	96.2





Distribution - Goniophotometer

Distribution Test Conditions

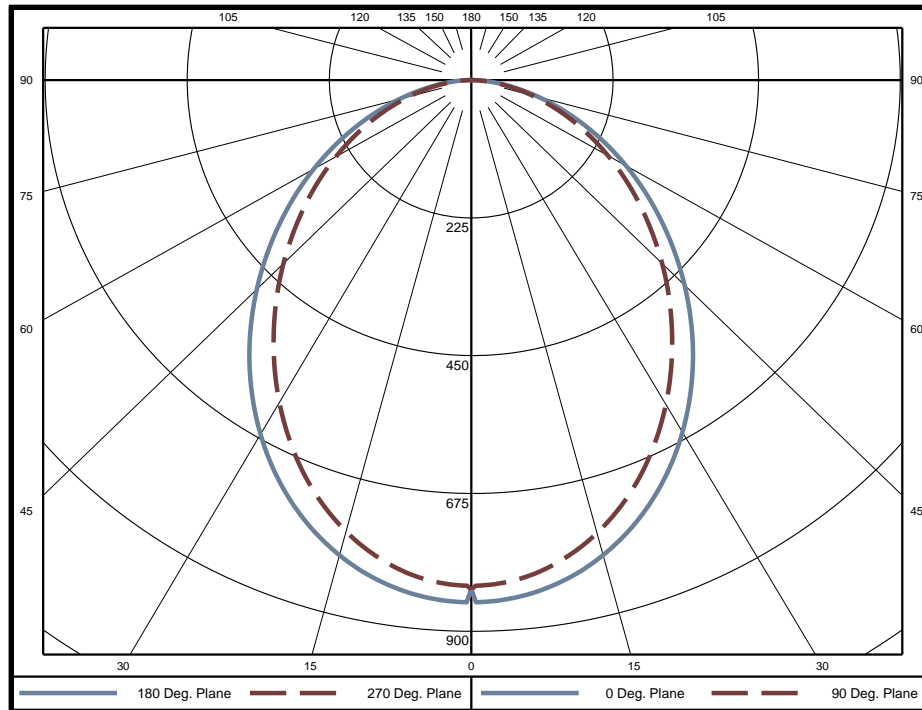
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	120.0 VAC	0.1729 A	20.64 W	0.994	60 Hz	4.87 %

Summary of Results

Spacing Criteria
 0-180: 1.20
 90-270: 1.20

Total Lumen Output: 1956 Lumens
Luminaire Efficacy: 94.8 lm/w
Maximum Candela: 853 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	19.8	1.0%	60-65	114.7	5.9%	120-125	0	0.0%
5-10	58.4	3.0%	65-70	91.9	4.7%	125-130	0	0.0%
10-15	93.9	4.8%	70-75	68.4	3.5%	130-135	0	0.0%
15-20	124.7	6.4%	75-80	45.5	2.3%	135-140	0	0.0%
20-25	149.4	7.6%	80-85	24.8	1.3%	140-145	0	0.0%
25-30	167.0	8.5%	85-90	7.4	0.4%	145-150	0	0.0%
30-35	177.2	9.1%	90-95	0	0.0%	150-155	0	0.0%
35-40	180.3	9.2%	95-100	0	0.0%	155-160	0	0.0%
40-45	176.7	9.0%	100-105	0	0.0%	160-165	0	0.0%
45-50	167.3	8.6%	105-110	0	0.0%	165-170	0	0.0%
50-55	153.3	7.8%	110-115	0	0.0%	170-175	0	0.0%
55-60	135.4	6.9%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	971	49.6%
0-60	1436	82.0%
0-90	1956	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	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0	831.0
5	847.1	828.0	818.7	819.9	818.5	819.9	818.7	828.0	847.1	828.0	818.7	819.9	818.5	819.9	818.7	828.0
10	830.5	811.6	800.8	799.7	797.5	799.7	800.8	811.6	830.5	811.6	800.8	799.7	797.5	799.7	800.8	811.6
15	803.3	784.0	771.5	767.6	764.3	767.6	771.5	784.0	803.3	784.0	771.5	767.6	764.3	767.6	771.5	784.0
20	766.4	746.9	731.7	724.7	720.7	724.7	731.7	746.9	766.4	746.9	731.7	724.7	720.7	724.7	731.7	746.9
25	720.4	700.4	683.4	673.4	668.2	673.4	683.4	700.4	720.4	700.4	683.4	673.4	668.2	673.4	683.4	700.4
30	666.7	646.8	628.1	615.5	609.5	615.5	628.1	646.8	666.7	646.8	628.1	615.5	609.5	615.5	628.1	646.8
35	607.3	588.2	568.7	554.0	547.3	554.0	568.7	588.2	607.3	588.2	568.7	554.0	547.3	554.0	568.7	588.2
40	544.1	525.6	506.4	491.3	484.3	491.3	506.4	525.6	544.1	525.6	506.4	491.3	484.3	491.3	506.4	525.6
45	478.4	461.6	443.3	428.4	421.9	428.4	443.3	461.6	478.4	461.6	443.3	428.4	421.9	428.4	443.3	461.6
50	412.6	397.7	381.6	367.4	360.7	367.4	381.6	397.7	412.6	397.7	381.6	367.4	360.7	367.4	381.6	397.7
55	348.0	335.5	321.0	308.5	303.0	308.5	321.0	335.5	348.0	335.5	321.0	308.5	303.0	308.5	321.0	335.5
60	285.4	275.2	263.0	252.3	247.2	252.3	263.0	275.2	285.4	275.2	263.0	252.3	247.2	252.3	263.0	275.2
65	225.0	217.6	207.5	198.6	194.8	198.6	207.5	217.6	225.0	217.6	207.5	198.6	194.8	198.6	207.5	217.6
70	167.6	162.9	154.7	148.4	145.4	148.4	154.7	162.9	167.6	162.9	154.7	148.4	145.4	148.4	154.7	162.9
75	115.1	111.9	106.5	102.2	100.4	102.2	106.5	111.9	115.1	111.9	106.5	102.2	100.4	102.2	106.5	111.9
80	68.5	66.7	63.7	61.4	60.4	61.4	63.7	66.7	68.5	66.7	63.7	61.4	60.4	61.4	63.7	66.7
85	30.6	29.5	28.4	27.0	26.3	27.0	28.4	29.5	30.6	29.5	28.4	27.0	26.3	27.0	28.4	29.5
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	9966	9966	9966
45	8113	7519	7155
55	7275	6712	6335
65	6383	5887	5527
75	5332	4936	4652
85	4207	3908	3621



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	2329	2329	2329	2329	2274	2274	2274	2274	2173	2173	2173	2081	2081	2081	1996	1996	1996	1956
1	2138	2049	1969	1898	2085	2005	1932	1867	1922	1862	1808	1846	1797	1753	1776	1737	1701	1660
2	1954	1800	1672	1565	1903	1763	1646	1546	1694	1596	1510	1631	1548	1476	1572	1504	1443	1402
3	1789	1591	1438	1316	1742	1561	1419	1304	1503	1381	1281	1450	1346	1259	1400	1313	1238	1196
4	1644	1418	1253	1126	1600	1393	1238	1119	1344	1210	1103	1299	1183	1088	1257	1157	1074	1033
5	1517	1274	1104	979	1477	1252	1093	973	1211	1071	963	1173	1050	952	1138	1029	942	902
6	1405	1152	983	861	1368	1134	974	857	1099	956	850	1067	940	842	1036	923	835	796
7	1306	1049	883	766	1273	1033	875	763	1004	861	758	976	848	752	950	835	747	709
8	1218	961	799	687	1188	947	793	685	922	781	681	898	770	677	875	759	673	637
9	1141	885	728	622	1113	873	723	620	851	713	617	830	704	614	810	695	611	576
10	1071	818	667	567	1046	808	663	566	789	655	563	771	648	561	754	640	558	525

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	51.9	4.57
6.00	23.1	6.86
8.00	13.0	9.15
10.0	8.31	11.4
12.0	5.77	13.7
14.0	4.24	16.0
16.0	3.25	18.3

Cone of Light Plot

