



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 Dr
Houston, TX 77017-5950

Catalog Number
ML3WW-HO-K40-4-XX-XX-UNV

Order Number
10675789
Test Number
904971

Test Date

2015-02-06 - 2015-02-09

Prepared By

Javier Caban, 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: Cast aluminum housing, frosted plastic lens enclosure
Lamp: 120 white LEDs
Mounting: Surface
Ballast/Driver: One Osram Optotronic OT50W/PRG1400C/UNV/DIM/L

Luminaire



Luminaire Characteristics

Luminous Length: 2.00 in.
Luminous Width: 46.50 in.
Luminous Height: 0.50 in.

Summary of Results

Integrating Sphere

Total Output: 2502 Lumens
Efficacy: 61.4 lm/w
CCT: 4010 K
CRI (Ra): 82.4

Distribution

Total Output: 2399 Lumens
Efficacy: 58.9 lm/w
Maximum Candela: 1383 Candela

Electrical Data at 120 VAC

Test Temperature: 25.0 °C
Voltage: 120.0 VAC
Current: 0.3407 A
Power: 40.72 W
Power Factor: 0.996
Frequency: 60 Hz
Current THD: 7.66 %



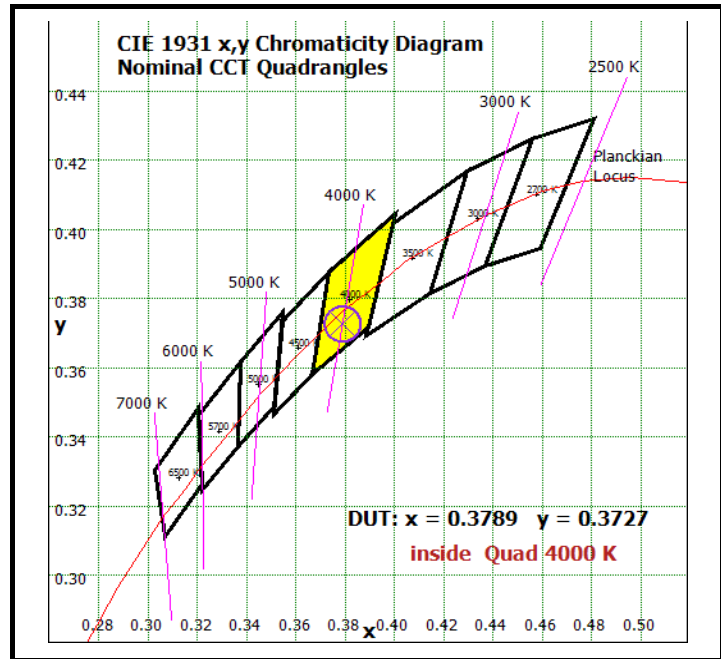
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.3407 A	40.72 W	0.996	60 Hz	7.66 %

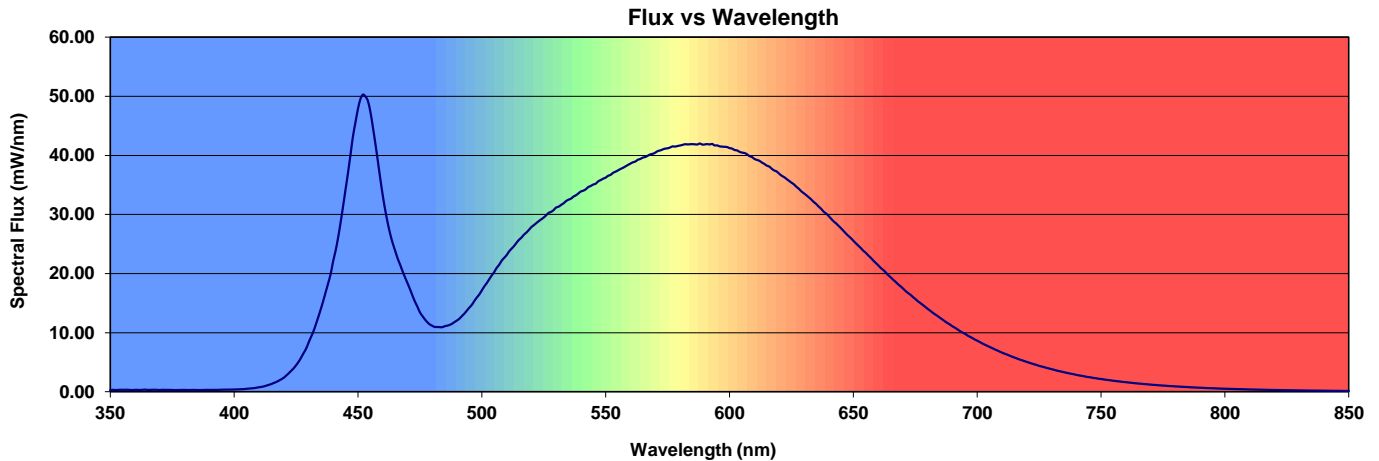
Summary of Results

Luminous Flux:	2502 Lumens
Efficacy:	61.4 lm/w
CCT:	4010 K
CRI (Ra):	82.4
CRI (R9):	19.8
Chromaticity (x):	0.3789
Chromaticity (y):	0.3727
Chromaticity (u):	0.2257
Chromaticity (v):	0.3330
Chromaticity (u')	0.2257
Chromaticity (v')	0.4996
Duv:	-0.0022



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
82.4	81.1	87.7	91.3	80.9	80.3	81.4	87.6	69.2	19.8	69.5	78.0	57.1	82.5	95.0





Distribution - Goniophotometer

Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	120.0 VAC	0.3405 A	40.71 W	0.996	60 Hz	7.61 %

Summary of Results

Spacing Criteria

0-180: 1.22
90-270: 1.22

Total Lumen Output:

2399 Lumens

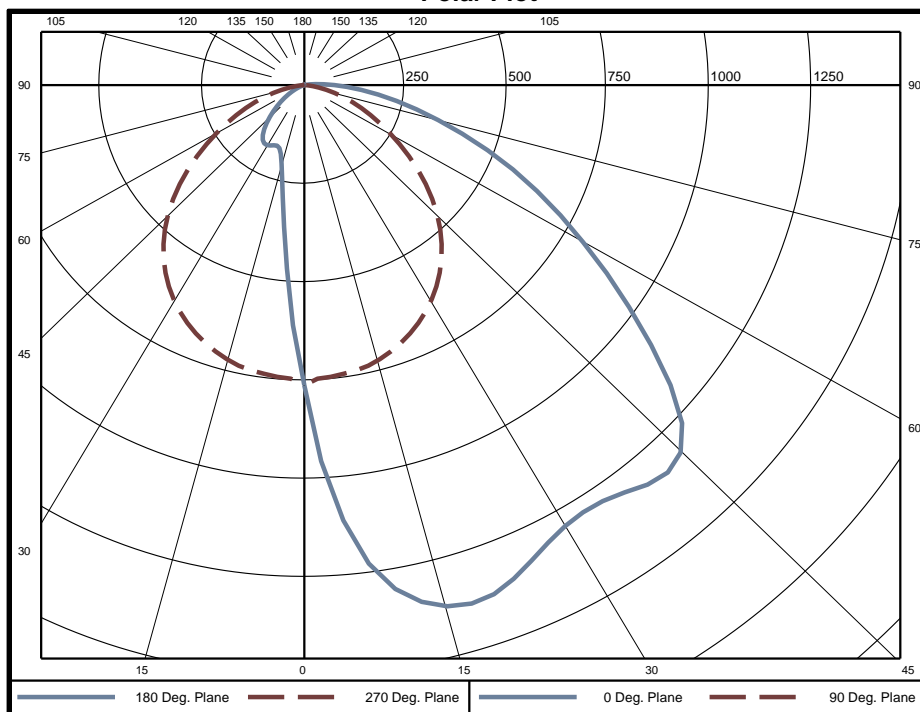
Luminaire Efficacy:

58.9 lm/w

Maximum Candela:

1383 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	19.5	0.8%	60-65	153.8	6.4%	120-125	0.0	0.0%
5-10	55.3	2.3%	65-70	117.4	4.9%	125-130	0.0	0.0%
10-15	91.3	3.8%	70-75	84.0	3.5%	130-135	0.0	0.0%
15-20	125.0	5.2%	75-80	55.7	2.3%	135-140	0.0	0.0%
20-25	154.8	6.5%	80-85	33.3	1.4%	140-145	0.0	0.0%
25-30	180.6	7.5%	85-90	16.8	0.7%	145-150	0.0	0.0%
30-35	202.6	8.4%	90-95	6.5	0.3%	150-155	0.0	0.0%
35-40	220.9	9.2%	95-100	1.5	0.1%	155-160	0.0	0.0%
40-45	234.3	9.8%	100-105	0.1	0.0%	160-165	0.0	0.0%
45-50	236.0	9.8%	105-110	0.0	0.0%	165-170	0.0	0.0%
50-55	219.8	9.2%	110-115	0.0	0.0%	170-175	0.0	0.0%
55-60	189.6	7.9%	115-120	0.0	0.0%	175-180	0.0	0.0%

Zone	Lumens	% of Luminaire
0-40	1050.0	43.8%
0-60	1929.9	80.4%
0-90	2390.9	99.7%
90-180	8.0	0.3%



Candela Tabulation
Horizontal Angle (Degrees)

	0	22.5	45	67.5	90	113	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	764	764	764	764	764	764	764	764	764	764	764	764	764	764	764	764
5	1112	1082	1009	891	746	629	536	485	469	485	536	629	746	891	1009	1082
10	1302	1270	1186	1004	738	511	371	308	292	308	371	511	738	1004	1186	1270
15	1373	1347	1276	1088	722	415	271	220	207	220	271	415	722	1088	1276	1347
20	1379	1360	1305	1134	698	340	212	178	171	178	212	340	698	1134	1305	1360
25	1335	1324	1291	1146	668	283	181	169	169	169	181	283	668	1146	1291	1324
30	1296	1278	1248	1132	630	241	172	175	176	175	172	241	630	1132	1248	1278
35	1292	1255	1190	1090	584	213	171	171	170	171	171	213	584	1090	1190	1255
40	1327	1262	1142	1021	528	194	161	152	147	152	161	194	528	1021	1142	1262
45	1322	1258	1104	934	464	176	140	122	114	122	140	176	464	934	1104	1258
50	1188	1157	1037	825	392	154	113	92	84	92	113	154	392	825	1037	1157
55	985	972	899	691	316	129	86	64	57	64	86	129	316	691	899	972
60	800	784	718	533	244	103	60	40	35	40	60	103	244	533	718	784
65	638	615	539	384	181	75	36	22	18	22	36	75	181	384	539	615
70	485	457	384	264	126	47	18	9	7	9	18	47	126	264	384	457
75	344	323	261	173	78	22	6	2	2	2	6	22	78	173	261	323
80	233	215	167	101	37	6	1	0	0	0	1	6	37	101	167	215
85	143	130	92	45	11	0	0	0	0	0	0	0	11	45	92	130
90	75	65	39	13	0	0	0	0	0	0	0	0	0	13	39	65
95	28	23	9	0	0	0	0	0	0	0	0	0	0	0	9	23
100	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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
45	24930	21970	10830
55	21100	20680	9043
65	16370	15240	6970
75	11470	9957	4804
85	7077	5689	1791



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	2855	2855	2855	2855	2788	2788	2788	2788	2662	2662	2662	2547	2547	2547	2442	2442	2442	2392
1	2610	2496	2394	2302	2544	2441	2348	2264	2337	2261	2191	2242	2180	2122	2155	2105	2058	2007
2	2375	2178	2015	1877	2311	2132	1982	1854	2045	1919	1810	1965	1860	1768	1892	1805	1727	1675
3	2164	1911	1716	1560	2104	1873	1691	1545	1800	1645	1517	1733	1600	1489	1670	1558	1463	1410
4	1979	1691	1480	1318	1923	1658	1461	1309	1597	1426	1290	1540	1391	1271	1487	1359	1253	1201
5	1818	1508	1291	1131	1767	1480	1277	1125	1428	1249	1111	1380	1222	1098	1335	1197	1086	1034
6	1676	1354	1139	984	1629	1331	1127	979	1287	1105	969	1245	1084	960	1207	1063	951	901
7	1552	1225	1013	865	1509	1205	1004	861	1167	986	854	1132	969	847	1098	952	841	792
8	1442	1115	910	768	1404	1098	902	766	1065	887	760	1035	873	755	1006	859	750	703
9	1346	1021	823	688	1311	1006	816	686	978	804	682	952	792	678	927	781	674	630
10	1260	940	749	622	1229	927	744	620	903	734	617	880	724	613	858	714	610	568

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	47.8	5.47
6.00	21.2	8.20
8.00	11.9	10.9
10.0	7.64	13.7
12.0	5.31	16.4
14.0	3.90	19.1
16.0	2.99	21.9

Cone of Light Plot

