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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
MLR5-MO-K40-4'-TT-LOH-UNIV

Order Number
10822132
Test Number
1094334

Test Date

2015-06-04

Prepared By

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Approved By

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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: 5.000 in.

Summary of Results

Integrating Sphere

Luminous Flux: 2177 Lumens
Efficacy: 96.7 lm/w
CCT: 3936 K
CRI (Ra): 83.7

Distribution

Total Luminaire Output: 2130 Lumens
Luminaire Efficacy: 94.5 lm/w
Maximum Candela: 783 Candela

Electrical Data at 120 VAC

Test Temperature: 25.5 °C
Voltage: 120.0 VAC
Current: 0.1886 A
Power: 22.51 W
Power Factor: 0.995
Frequency: 60 Hz
Current THD: 5.01 %



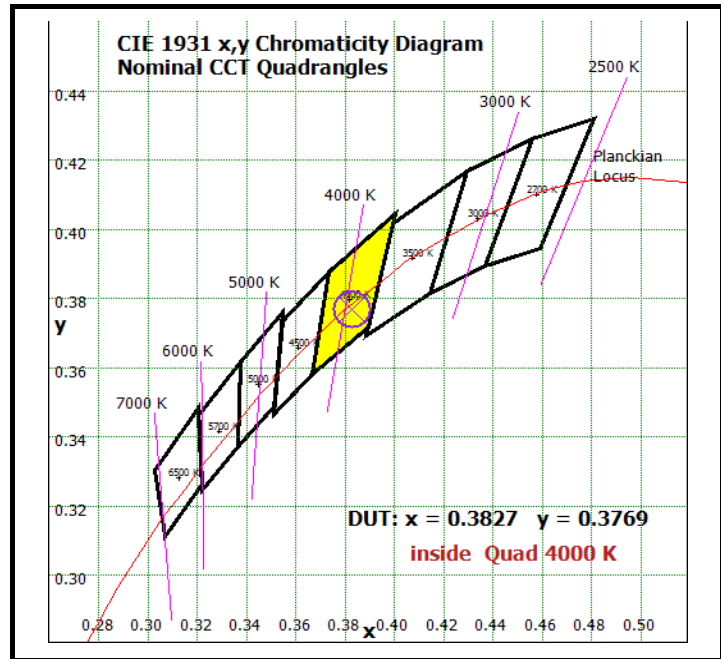
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	120.0 VAC	0.1886 A	22.51 W	0.995	60 Hz	5.01 %

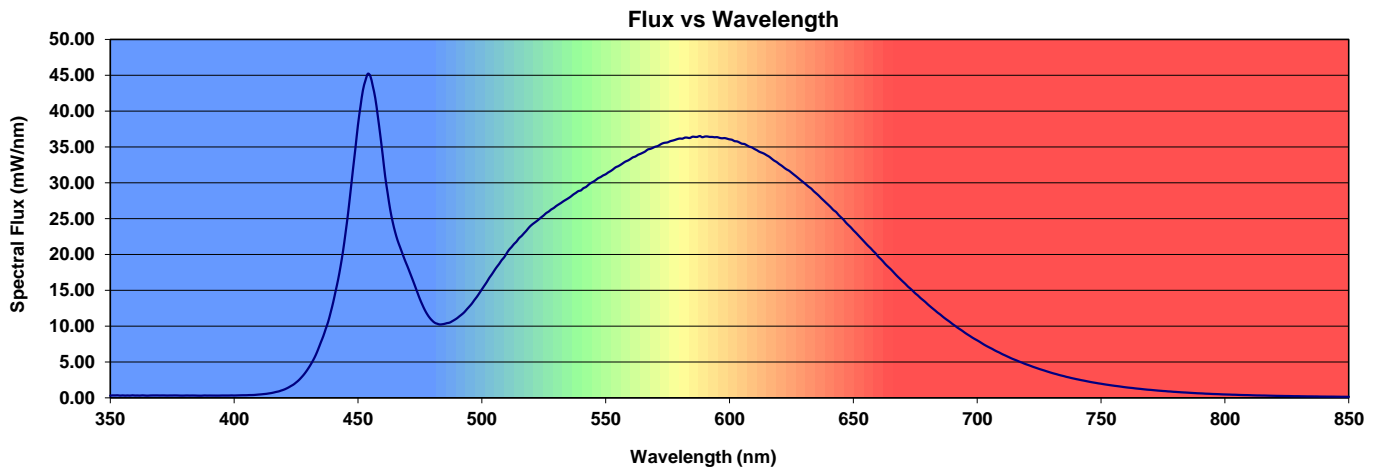
Summary of Results

Total Output:	2177 Lumens
Efficacy:	96.7 lm/w
CCT:	3936 K
CRI (Ra):	83.7
CRI (R9):	24.5
Chromaticity (x):	0.3827
Chromaticity (y):	0.3769
Chromaticity (u):	0.2266
Chromaticity (v):	0.3347
Chromaticity (u')	0.2266
Chromaticity (v')	0.5020
Duv:	-0.0007



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.7	82.3	89.5	93.4	81.1	81.2	83.7	88.2	70.3	24.5	73.6	78.3	56.8	84.1	96.2





Distribution - Goniophotometer

Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.3 °C	120.0 VAC	0.1886 A	22.53 W	0.995	60 Hz	4.85 %

Summary of Results

Spacing Criteria

0-180: 1.24
90-270: 1.24

Total Lumen Output:

2130 Lumens

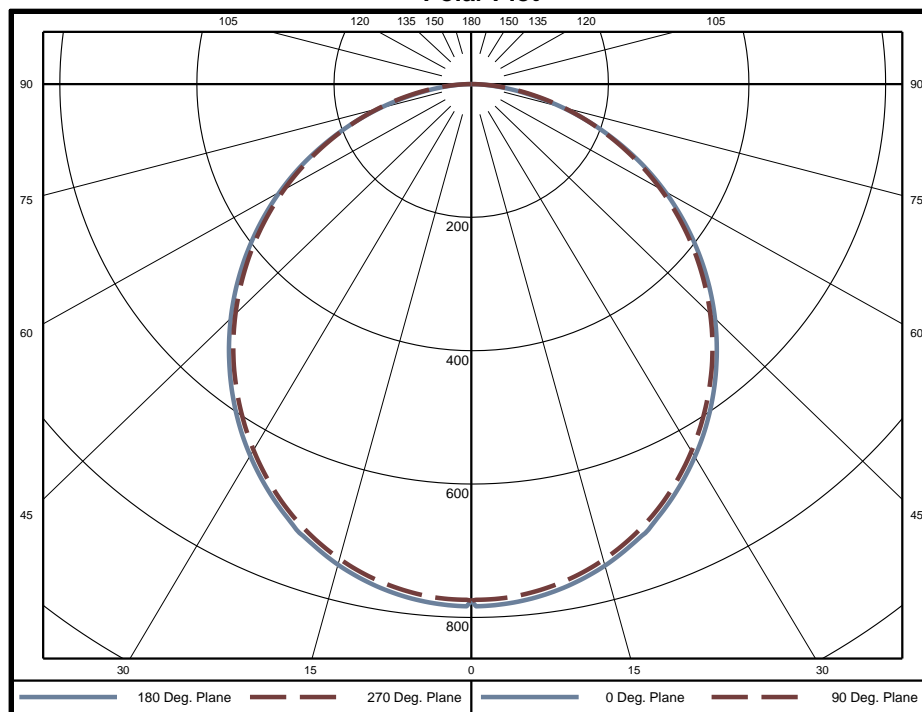
Luminaire Efficacy:

94.5 lm/w

Maximum Candela:

783 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	18.5	0.9%	60-65	140.7	6.6%	120-125	0	0.0%
5-10	54.8	2.6%	65-70	115.7	5.4%	125-130	0	0.0%
10-15	88.9	4.2%	70-75	88.0	4.1%	130-135	0	0.0%
15-20	119.7	5.6%	75-80	59.3	2.8%	135-140	0	0.0%
20-25	146.0	6.9%	80-85	32.5	1.5%	140-145	0	0.0%
25-30	166.7	7.8%	85-90	9.7	0.5%	145-150	0	0.0%
30-35	181.4	8.5%	90-95	0	0.0%	150-155	0	0.0%
35-40	189.9	8.9%	95-100	0	0.0%	155-160	0	0.0%
40-45	192.0	9.0%	100-105	0	0.0%	160-165	0	0.0%
45-50	187.7	8.8%	105-110	0	0.0%	165-170	0	0.0%
50-55	177.3	8.3%	110-115	0	0.0%	170-175	0	0.0%
55-60	161.5	7.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	966	45.3%
0-60	1518	79.1%
0-90	2130	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	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2	775.2
5	779.4	770.3	767.8	771.9	770.7	771.9	767.8	770.3	779.4	770.3	767.8	771.9	770.7	771.9	767.8	770.3
10	767.4	758.4	756.2	760.1	758.7	760.1	756.2	758.4	767.4	758.4	756.2	760.1	758.7	760.1	756.2	758.4
15	747.8	738.9	736.7	740.3	739.1	740.3	736.7	738.9	747.8	738.9	736.7	740.3	739.1	740.3	736.7	738.9
20	721.2	711.8	709.9	713.3	711.9	713.3	709.9	711.8	721.2	711.8	709.9	713.3	711.9	713.3	709.9	711.8
25	686.4	677.5	676.0	679.0	677.8	679.0	676.0	677.5	686.4	677.5	676.0	679.0	677.8	679.0	676.0	677.5
30	646.4	637.8	636.5	638.6	637.3	638.6	636.5	637.8	646.4	637.8	636.5	638.6	637.3	638.6	636.5	637.8
35	601.4	593.0	591.5	593.2	592.0	593.2	591.5	593.0	601.4	593.0	591.5	593.2	592.0	593.2	591.5	593.0
40	551.7	544.4	543.2	544.0	543.0	544.0	543.2	544.4	551.7	544.4	543.2	544.0	543.0	544.0	543.2	544.4
45	498.9	492.1	490.9	491.8	490.0	491.8	490.9	492.1	498.9	492.1	490.9	491.8	490.0	491.8	490.9	492.1
50	443.1	436.9	435.7	435.5	434.2	435.5	435.7	436.9	443.1	436.9	435.7	435.5	434.2	435.5	435.7	436.9
55	384.8	379.2	378.3	377.8	376.8	377.8	378.3	379.2	384.8	379.2	378.3	377.8	376.8	377.8	378.3	379.2
60	324.9	320.0	319.2	318.6	318.0	318.6	319.2	320.0	324.9	320.0	319.2	318.6	318.0	318.6	319.2	320.0
65	263.0	258.8	258.3	258.6	258.0	258.6	258.3	258.8	263.0	258.8	258.3	258.6	258.0	258.6	258.3	258.8
70	199.7	197.2	197.7	198.9	198.5	198.9	197.7	197.2	199.7	197.2	197.7	198.9	198.5	198.9	197.7	197.2
75	138.1	136.9	138.7	140.5	141.3	140.5	138.7	136.9	138.1	136.9	138.7	140.5	141.3	140.5	138.7	136.9
80	80.3	81.4	84.2	86.4	87.0	86.4	84.2	81.4	80.3	81.4	84.2	86.4	87.0	86.4	84.2	81.4
85	33.7	35.1	37.4	39.0	39.5	39.0	37.4	35.1	33.7	35.1	37.4	39.0	39.5	39.0	37.4	35.1
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)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	5113	5113	5113
45	4654	4579	4571
55	4425	4350	4333
65	4105	4032	4026
75	3518	3536	3601
85	2548	2833	2986



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	2536	2536	2536	2536	2477	2477	2477	2477	2367	2367	2367	2266	2266	2266	2174	2174	2174	2130
1	2316	2214	2122	2040	2258	2165	2082	2006	2075	2006	1943	1991	1935	1883	1914	1869	1827	1782
2	2106	1930	1784	1662	2050	1890	1755	1642	1814	1701	1603	1744	1649	1566	1679	1601	1531	1485
3	1920	1695	1521	1382	1867	1661	1500	1370	1598	1459	1345	1539	1421	1321	1484	1384	1299	1252
4	1759	1502	1315	1172	1709	1474	1299	1163	1420	1268	1147	1371	1238	1131	1324	1210	1116	1070
5	1618	1343	1151	1010	1573	1319	1139	1004	1274	1115	993	1231	1092	982	1192	1070	971	926
6	1494	1210	1019	882	1453	1189	1009	878	1151	990	870	1115	972	862	1081	954	854	810
7	1386	1097	911	780	1349	1080	903	777	1047	887	771	1016	872	765	987	858	759	717
8	1290	1002	820	696	1257	987	814	694	959	801	689	932	789	685	907	777	681	640
9	1206	920	745	627	1176	907	739	625	883	729	621	860	719	618	838	709	615	576
10	1131	849	681	568	1104	838	676	567	817	668	564	797	659	562	778	651	559	522

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	48.4	4.90
6.00	21.5	7.36
8.00	12.1	9.81
10.0	7.75	12.3
12.0	5.38	14.7
14.0	3.95	17.2
16.0	3.03	19.6

Cone of Light Plot

