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Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002
UL1598-2008

Prepared For
Mercury Lighting

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Fairfield, NJ 07004-3416

Catalog Number
L455-4-2100-50K-HTA20-S30-20-UNI-XXXX

Order Number
10626167
Test Number
856725

Test Date

2015-01-05

Prepared By

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Approved By

Kyle Spaziani, Project Handler

The results contained in this report pertain only to the tested sample.
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DLC Results Summary

Technical Requirements v2.1

Linear Ambient Luminaires: Direct		
Requirement Category	Requirement	Test Results
Minimum Light Output	≥337.5 Lumens/ft	2078
Minimum Lamp Output	N/A	N/A
Spacing Criteria (0-180°)	N/A	N/A
Spacing Criteria (90-270°)	N/A	N/A
Zonal Lumen Requirement (0-60°)	≥37%	65.7%
Zonal Lumen Requirement 2	N/A	N/A
Minimum Luminaire Efficacy	≥82.45 lm/w	115 lm/w
Minimum Lamp Efficacy	N/A	N/A
Allowable CCTs*	≤5000K	5056 K
Minimum CRI	≥78	84.6
L70 Lumen maintenance	50000 Hours	TM-21 must be completed
Minimum Luminaire Warranty	5 Years	N/A
Power Factor 120 / 277	≥0.87	0.904
Total Harmonic Distortion (A-%)	≤25%	5.219%

*Defined by ANSI C78.377-2011†

†ANSI C78.377-2011 also referred to for Duv and (x,y) chromaticity coordinates tolerances for indoor categories

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: Formed white enamel steel housing, white enamel steel reflector, frosted plastic lens enclosure
Lamp: 120 white LEDs
Mounting: Surface
Ballast/Driver: One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L

Luminaire



Luminaire Characteristics

Luminous Length: 45.00 in.
 Luminous Width: 4.750 in.
 Luminous Height: 1.75 in.

Summary of Results

Integrating Sphere

Luminous Flux: 2078 Lumens
 Efficacy: 103.8 lm/w
 CCT: 5056 K
 CRI (Ra): 84.6

Distribution

Total Luminaire Output: 2070 Lumens
 Luminaire Efficacy: 115 lm/w
 Maximum Candela: 609.4 Candela

Electrical Data at 277 VAC

Test Temperature: 24.9 °C
 Voltage: 277.0 VAC
 Current: 0.07999 A
 Power: 20.02 W
 Power Factor: 0.904
 Frequency: 60 Hz
 Current THD: 16.3 %

In-Situ

LED Temperature: 40.3 °C
 Driver Temperature: 41.6 °C
 Maximum LED Current: 0.04310 A

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



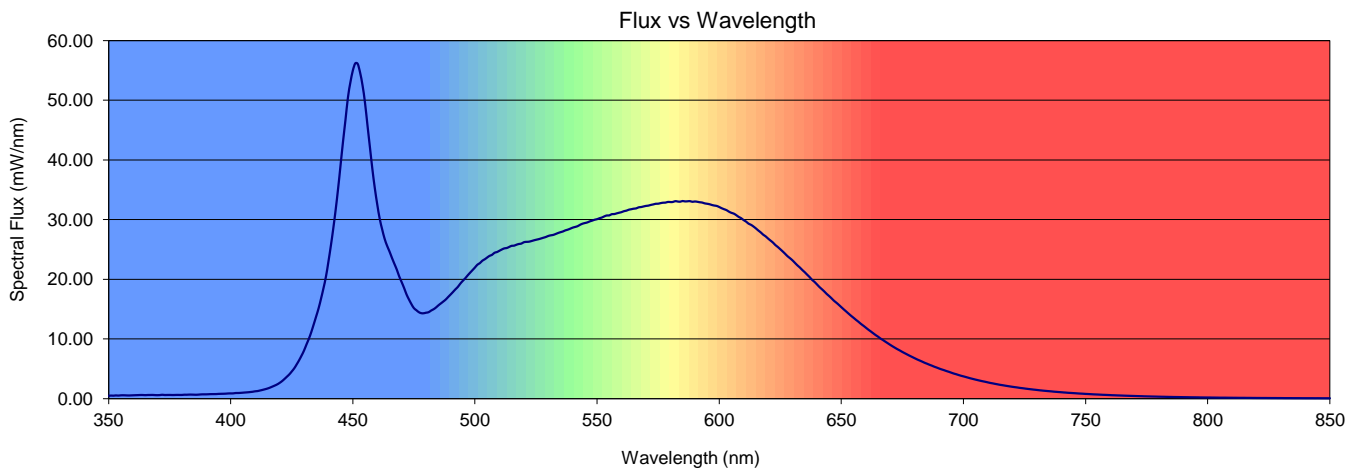
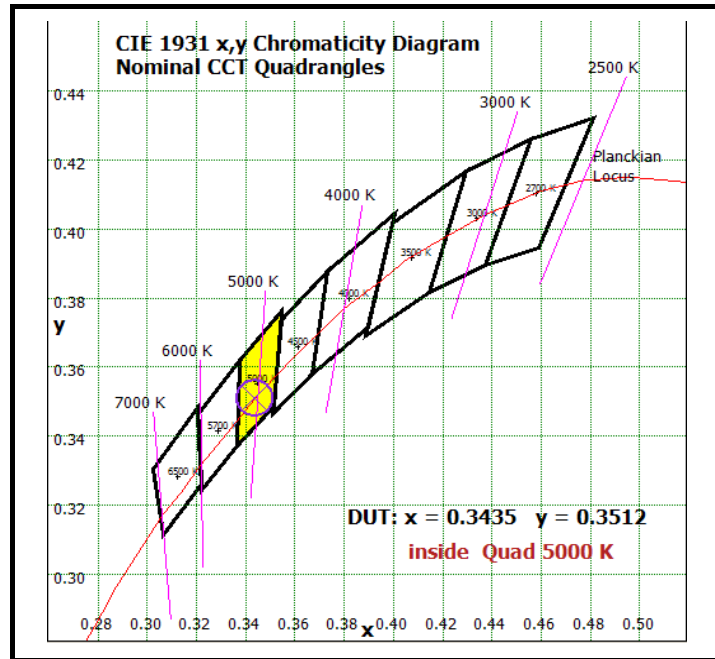
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	277.0 VAC	0.07999 A	20.02 W	0.904	60 Hz	16.3 %

Summary of Results

Luminous Flux	2078 Lumens
Efficacy:	103.8 lm/w
CCT:	5056 K
CRI (Ra):	84.6
CRI (R9):	12.1
Chromaticity (x)	0.3435
Chromaticity (y)	0.3512
Chromaticity (u)	0.2105
Chromaticity (v)	0.3228
Chromaticity (u')	0.2105
Chromaticity (v')	0.4842
Duv:	0.0003





Distribution - Goniophotometer

Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.1513 A	18.01 W	0.992	60 Hz	5.22 %

Summary of Results

Spacing Criteria

0-180: 1.20
90-270: 1.31

Total Lumen Output:

2070 Lumens

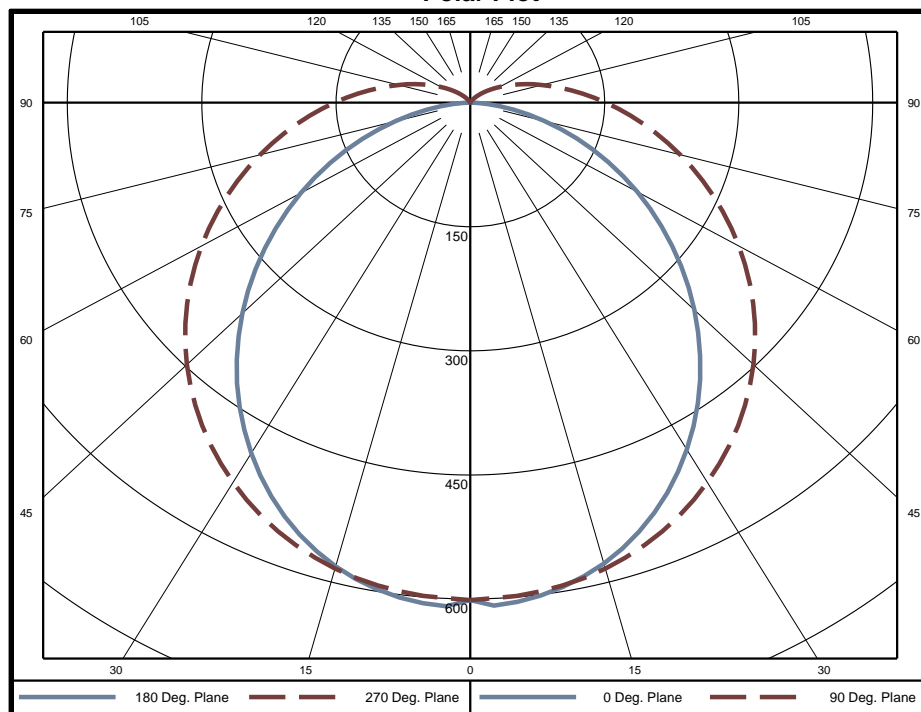
Luminaire Efficacy:

115.0 lm/w

Maximum Candela:

609 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	15.2	0.74%	60-65	128.0	6.18%	120-125	6.9	0.33%
5-10	42.5	2.05%	65-70	114.1	5.51%	125-130	4.5	0.22%
10-15	69.2	3.34%	70-75	99.0	4.78%	130-135	2.7	0.13%
15-20	93.5	4.52%	75-80	83.3	4.02%	135-140	1.5	0.07%
20-25	114.5	5.53%	80-85	68.1	3.29%	140-145	0.7	0.04%
25-30	131.5	6.35%	85-90	54.3	2.62%	145-150	0.3	0.01%
30-35	144.0	6.96%	90-95	42.9	2.07%	150-155	0.1	0.00%
35-40	152.0	7.34%	95-100	33.7	1.63%	155-160	0.0	0.00%
40-45	155.2	7.50%	100-105	25.9	1.25%	160-165	0.0	0.00%
45-50	154.0	7.44%	105-110	19.6	0.94%	165-170	0.0	0.00%
50-55	148.6	7.18%	110-115	14.3	0.69%	170-175	0.0	0.00%
55-60	139.8	6.75%	115-120	10.2	0.49%	175-180	0.0	0.00%



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	601	601	601	601	601	601	601	601	601	601	601	601	601	601	601	601
5	606	598	596	599	599	599	596	598	607	598	596	599	599	599	596	598
10	595	588	589	593	593	593	589	588	597	588	589	593	593	593	589	588
15	577	571	576	582	583	582	576	571	580	571	576	582	583	582	576	571
20	552	548	557	566	569	566	557	548	556	548	557	566	569	566	557	548
25	521	519	534	547	552	547	534	519	525	519	534	547	552	547	534	519
30	484	485	507	523	530	523	507	485	489	485	507	523	530	523	507	485
35	443	446	476	496	505	496	476	446	449	446	476	496	505	496	476	446
40	400	405	442	466	478	466	442	405	406	405	442	466	478	466	442	405
45	354	362	406	433	448	433	406	362	360	362	406	433	448	433	406	362
50	308	318	368	399	415	399	368	318	313	318	368	399	415	399	368	318
55	261	273	330	364	381	364	330	273	265	273	330	364	381	364	330	273
60	215	231	292	328	347	328	292	231	218	231	292	328	347	328	292	231
65	170	189	254	292	311	292	254	189	173	189	254	292	311	292	254	189
70	127	150	219	258	277	258	219	150	128	150	219	258	277	258	219	150
75	86	114	185	224	243	224	185	114	86	114	185	224	243	224	185	114
80	49	83	154	192	210	192	154	83	49	83	154	192	210	192	154	83
85	19	57	126	163	180	163	126	57	19	57	126	163	180	163	126	57
90	0	37	102	136	152	136	102	37	0	37	102	136	152	136	102	37
95	0	23	81	111	126	111	81	23	0	23	81	111	126	111	81	23
100	0	14	63	90	103	90	63	14	0	14	63	90	103	90	63	14
105	0	8	48	72	83	72	48	8	0	8	48	72	83	72	48	8
110	0	5	36	56	66	56	36	5	0	5	36	56	66	56	36	5
115	0	3	26	42	51	42	26	3	0	3	26	42	51	42	26	3
120	0	1	19	31	38	31	19	1	0	1	19	31	38	31	19	1
125	0	1	13	22	28	22	13	1	0	1	13	22	28	22	13	1
130	0	0	8	15	19	15	8	0	0	0	8	15	19	15	8	0
135	0	0	5	10	13	10	5	0	0	0	5	10	13	10	5	0
140	0	0	2	6	8	6	2	0	0	0	2	6	8	6	2	0
145	0	0	1	3	4	3	1	0	0	0	1	3	4	3	1	0
150	0	0	0	1	2	1	0	0	0	0	0	1	2	1	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	0	0	0
55	0	0	0
65	0	0	0
75	0	0	0
85	0	0	0



Utilization of Lumens - Zonal Cavity Method

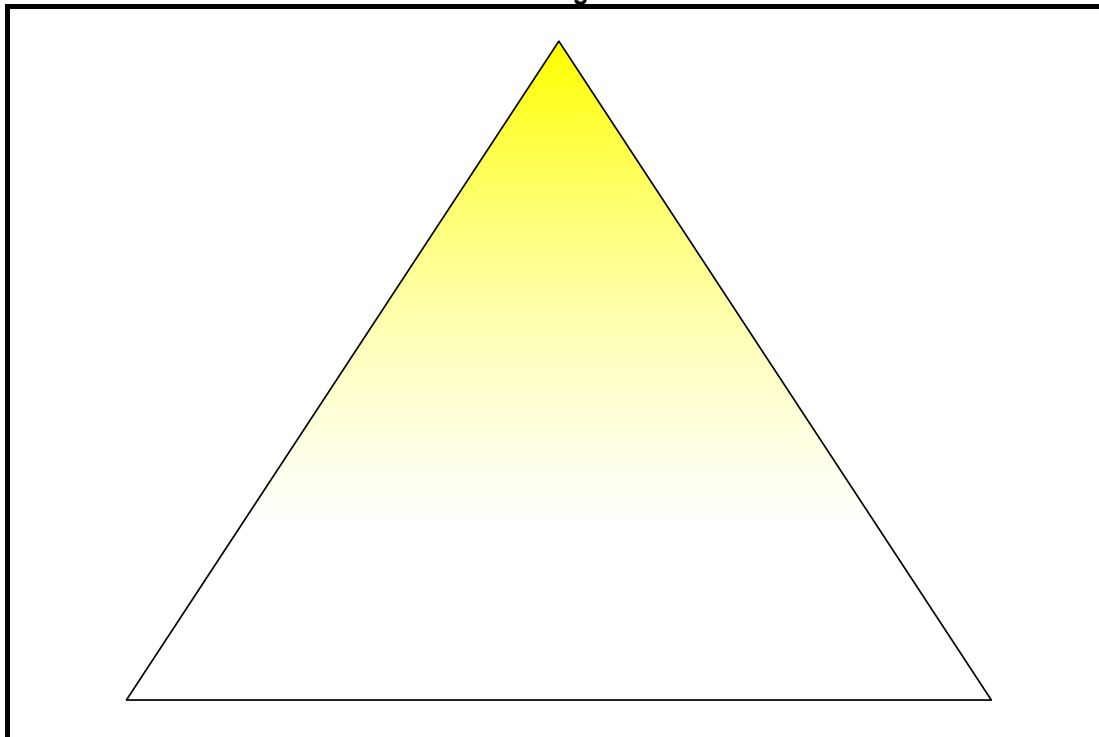
Effective Floor Cavity Reflectance 20%

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	2426	2426	2426	2426	2351	2351	2351	2351	2211	2211	2211	2082	2082	2082	1964	1964	1964	1908
1	2172	2056	1952	1858	2097	1992	1898	1812	1873	1796	1725	1763	1700	1643	1662	1612	1565	1509
2	1962	1773	1616	1485	1890	1719	1576	1454	1617	1498	1395	1524	1425	1339	1437	1357	1285	1229
3	1781	1547	1365	1221	1714	1501	1334	1199	1415	1273	1156	1335	1216	1116	1261	1161	1076	1021
4	1627	1365	1173	1026	1565	1326	1148	1010	1252	1099	978	1184	1053	947	1120	1009	917	865
5	1494	1216	1022	879	1437	1183	1002	866	1120	962	842	1061	924	817	1006	888	794	744
6	1378	1093	901	764	1326	1064	884	754	1009	852	734	959	820	715	911	790	696	648
7	1276	989	803	672	1230	964	788	664	917	761	648	873	735	632	831	709	616	571
8	1187	901	721	597	1145	880	709	591	838	686	577	800	664	564	763	642	551	508
9	1109	826	653	536	1070	807	643	530	771	623	519	737	604	508	705	585	497	457
10	1039	761	595	485	1004	745	586	480	713	569	470	683	553	460	654	536	451	413

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	37.6	5.00
6.00	16.7	7.50
8.00	9.40	10.0
10.0	6.01	12.5
12.0	4.18	15.0
14.0	3.07	17.5
16.0	2.35	20.0

Cone of Light Plot





In-Situ Test

In-Situ Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.0 °C	120.2 VAC	N / A	N / A	N / A	60 Hz	N / A

Summary of Results

LED Temperature: 40.3 °C
 Driver Temperature: 41.6 °C
 Maximum LED Current: 0.04310 A

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

LED Temperature Location



Driver Temperature Location

