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ACCREDITED

NVLAP LAB CODE 201042-0

Photometric Test Report

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

Prepared For

Mercury Lighting

Stephen Bambush
20 Audrey Pl.
Fairfield, NJ 07004-3416

Catalog Number

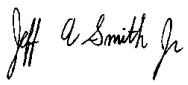
L455-4-4800-30K-HTA20-S50-20-UNI-XXXX

Order Number
10626167
Test Number
856726

Test Date

2015-01-05

Prepared By



Jeff Smith Jr., Project Handler

Approved By

Kyle Spaziani, Project Handler

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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	4999
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%	66.3%
Zonal Lumen Requirement 2	N/A	N/A
Minimum Luminaire Efficacy	≥82.45 lm/w	88.8 lm/w
Minimum Lamp Efficacy	N/A	N/A
Alowable CCTs*	≤5000K	3080 K
Minimum CRI	≥78	82.6
L70 Lumen maintenance	50000 Hours	TM-21 must be completed
Minimum Luminaire Warranty	5 Years	N/A
Power Factor 120 / 277	≥0.87	0.996
Total Harmonic Distortion (A-%)	≤25%	8.176%

*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 OT50W/PRG1400C/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:	4999 Lumens
Efficacy:	89.4 lm/w
CCT:	3080 K
CRI (Ra):	82.6

Distribution

Total Luminaire Output:	4972 Lumens
Luminaire Efficacy:	88.8 lm/w
Maximum Candela:	1493 Candela

Electrical Data at 120 VAC

Test Temperature:	25.0 °C
Voltage:	120.0 VAC
Current:	0.4678 A
Power:	55.93 W
Power Factor:	0.996
Frequency:	60 Hz
Current THD:	8.21 %

In-Situ

LED Temperature:	76.9 °C
Driver Temperature:	67.4 °C
Maximum LED Current:	0.1296 A

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

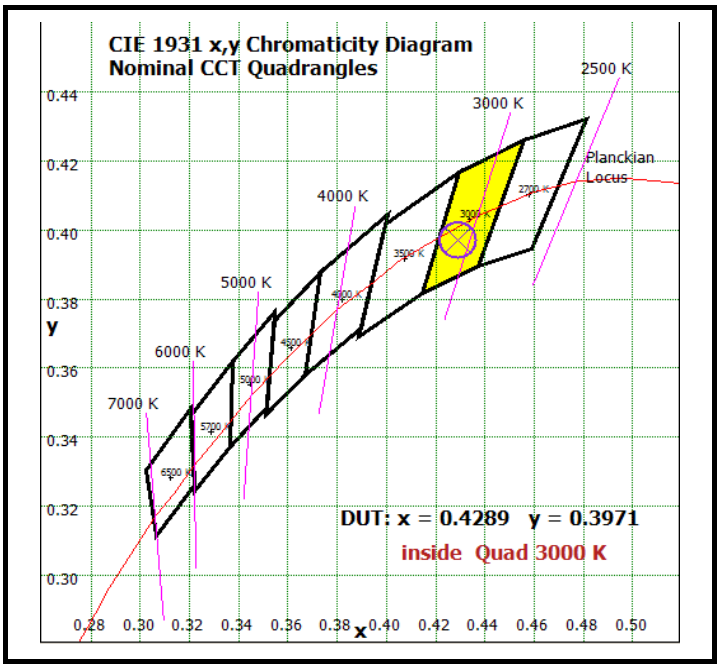
Color Quality - Integrating Sphere

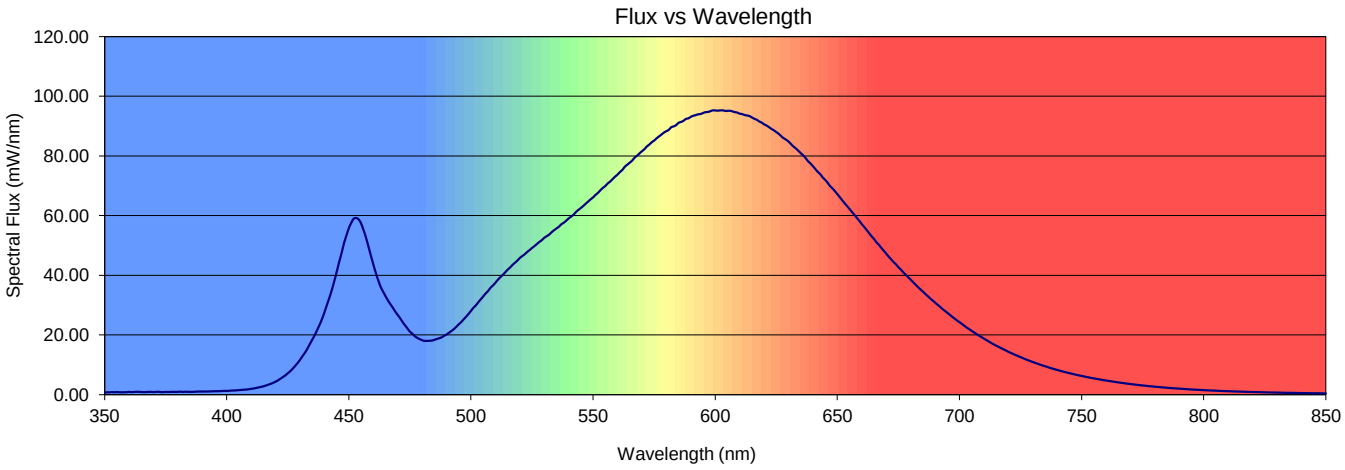
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.0 VAC	0.4678 A	55.93 W	0.996	60 Hz	8.21 %

Summary of Results

Luminous Flux	4999	Lumens
Efficacy:	89.4	lm/w
CCT:	3080	K
CRI (Ra):	82.6	
CRI (R9):	19.8	
Chromaticity (x)	0.4289	
Chromaticity (y)	0.3971	
Chromaticity (u)	0.2484	
Chromaticity (v)	0.3449	
Chromaticity (u'	0.2484	
Chromaticity (v'	0.5174	
Duv:	-0.0022	





Distribution - Goniophotometer

Distribution Test Conditions

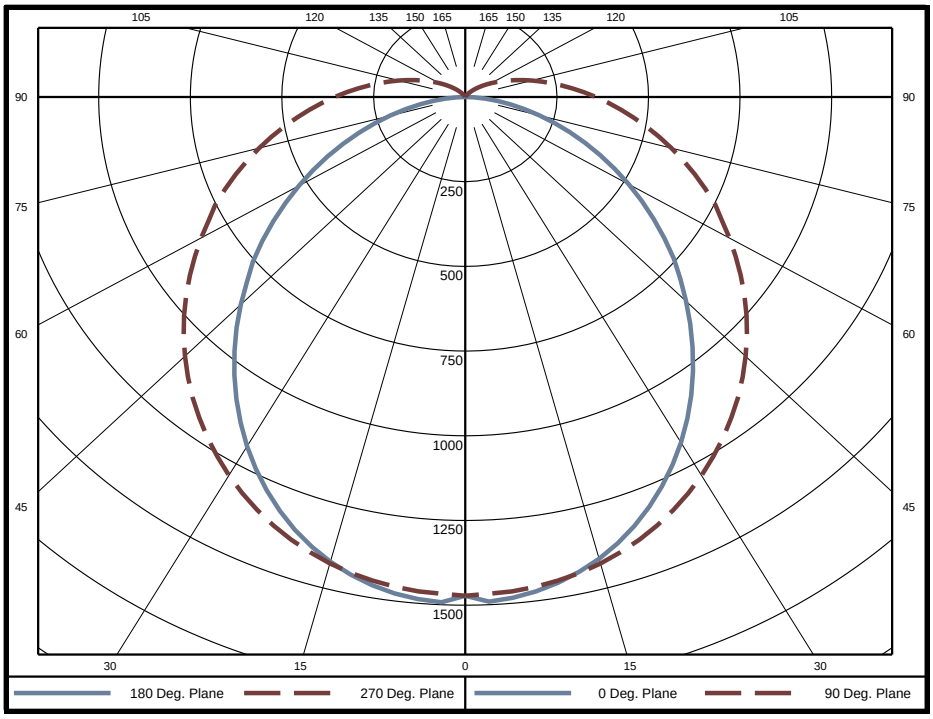
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.2 °C	120.0 VAC	0.4685 A	56.00 W	0.996	60 Hz	8.18 %

Summary of Results

Spacing Criteria
0-180: 1.19
90-270: 1.30

Total Lumen Output: 4972 Lumens
Luminaire Efficacy: 88.8 lm/w
Maximum Candela: 1493 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	37.3	0.75%	60-65	307.5	6.19%	120-125	14.8	0.30%
5-10	104.1	2.09%	65-70	273.8	5.51%	125-130	9.4	0.19%
10-15	169.3	3.41%	70-75	236.8	4.76%	130-135	5.7	0.11%
15-20	228.4	4.59%	75-80	198.9	4.00%	135-140	3.1	0.06%
20-25	279.2	5.62%	80-85	161.9	3.26%	140-145	1.4	0.03%
25-30	320.1	6.44%	85-90	128.1	2.58%	145-150	0.4	0.01%
30-35	349.9	7.04%	90-95	100.1	2.01%	150-155	0.0	0.00%
35-40	368.2	7.41%	95-100	77.6	1.56%	155-160	0.0	0.00%
40-45	374.9	7.54%	100-105	58.9	1.19%	160-165	0.0	0.00%
45-50	371.1	7.46%	105-110	43.7	0.88%	165-170	0.0	0.00%
50-55	357.8	7.20%	110-115	31.5	0.63%	170-175	0.0	0.00%
55-60	335.8	6.75%	115-120	22.1	0.44%	175-180	0.0	0.00%

Candela Tabulation

Horizontal Angle (Degrees)

Vertical 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	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472	1472
5	1484	1463	1459	1466	1465	1466	1459	1463	1487	1463	1459	1466	1465	1466	1459	1463
10	1456	1438	1439	1450	1450	1450	1439	1438	1463	1438	1439	1450	1450	1450	1439	1438
15	1411	1396	1406	1422	1425	1422	1406	1396	1420	1396	1406	1422	1425	1422	1406	1396
20	1347	1338	1360	1383	1390	1383	1360	1338	1359	1338	1360	1383	1390	1383	1360	1338
25	1268	1264	1301	1332	1344	1332	1301	1264	1281	1264	1301	1332	1344	1332	1301	1264
30	1177	1179	1232	1272	1290	1272	1232	1179	1190	1179	1232	1272	1290	1272	1232	1179
35	1074	1082	1154	1204	1227	1204	1154	1082	1088	1082	1154	1204	1227	1204	1154	1082
40	964	979	1069	1129	1158	1129	1069	979	979	979	1069	1129	1158	1129	1069	979
45	851	871	979	1048	1082	1048	979	871	866	871	979	1048	1082	1048	979	871
50	742	768	885	963	1002	963	885	768	756	768	885	963	1002	963	885	768
55	626	658	794	875	917	875	794	658	639	658	794	875	917	875	794	658
60	514	552	701	788	832	788	701	552	524	552	701	788	832	788	701	552
65	406	450	611	705	753	705	611	450	414	450	611	705	753	705	611	450
70	303	356	523	620	666	620	523	356	308	356	523	620	666	620	523	356
75	209	271	442	537	582	537	442	271	212	271	442	537	582	537	442	271
80	125	196	366	458	502	458	366	196	126	196	366	458	502	458	366	196
85	55	133	297	385	426	385	297	133	54	133	297	385	426	385	297	133
90	0	86	238	319	357	319	238	86	0	86	238	319	357	319	238	86
95	0	53	186	259	293	259	186	53	0	53	186	259	293	259	186	53
100	0	32	143	207	237	207	143	32	0	32	143	207	237	207	143	32
105	0	19	108	162	189	162	108	19	0	19	108	162	189	162	108	19
110	0	10	80	124	147	124	80	10	0	10	80	124	147	124	80	10
115	0	6	58	93	111	93	58	6	0	6	58	93	111	93	58	6
120	0	2	40	68	83	68	40	2	0	2	40	68	83	68	40	2
125	0	0	27	48	59	48	27	0	0	0	27	48	59	48	27	0
130	0	0	17	32	41	32	17	0	0	0	17	32	41	32	17	0
135	0	0	10	20	27	20	10	0	0	0	10	20	27	20	10	0
140	0	0	5	11	16	11	5	0	0	0	5	11	16	11	5	0
145	0	0	1	5	8	5	1	0	0	0	1	5	8	5	1	0
150	0	0	0	1	3	1	0	0	0	0	0	1	3	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/m^2)

Horizontal Angle (Degrees)

Vertical 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

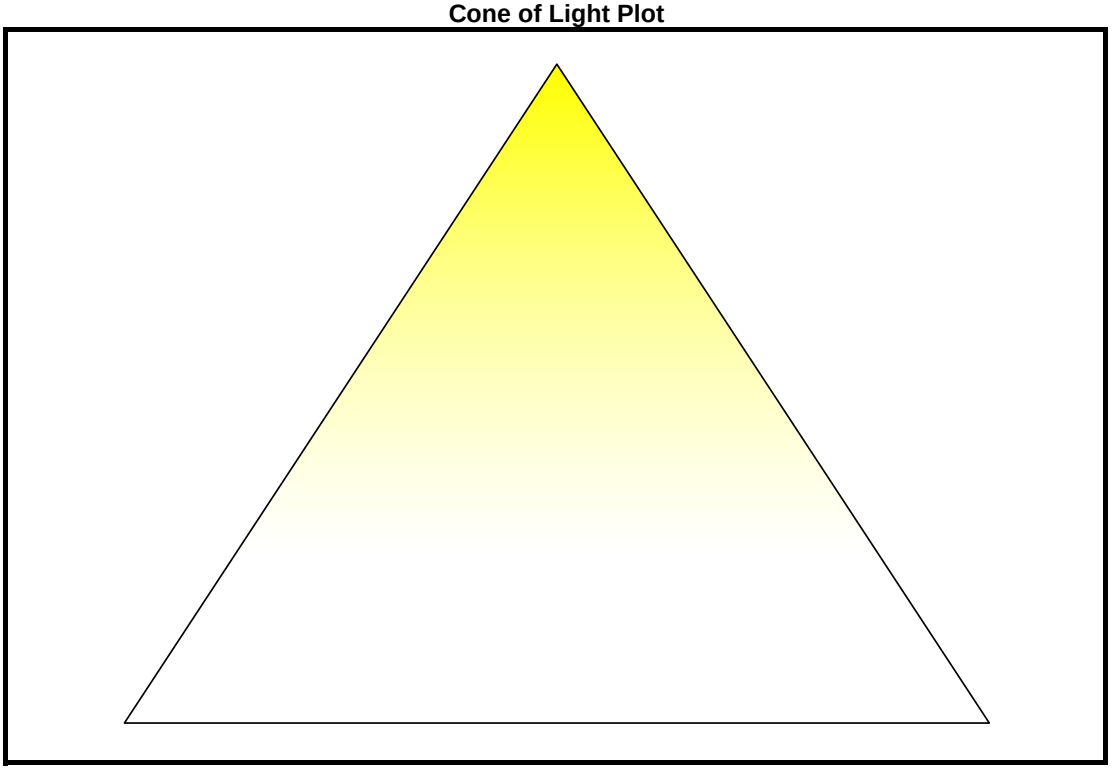
Utilization of Lumens - Zonal Cavity Method

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	5832	5832	5832	5832	5654	5654	5654	5654	5321	5321	5321	5017	5017	5017	4737	4737	4737	4606
1	5225	4947	4698	4473	5047	4796	4570	4365	4513	4328	4159	4254	4104	3965	4014	3895	3783	3648
2	4720	4267	3893	3579	4549	4140	3797	3507	3900	3615	3368	3679	3443	3236	3475	3282	3109	2976
3	4287	3725	3290	2944	4127	3617	3216	2893	3413	3073	2794	3224	2938	2698	3049	2811	2606	2476
4	3916	3288	2828	2477	3770	3196	2769	2439	3022	2656	2365	2861	2547	2293	2711	2444	2223	2098
5	3596	2931	2466	2122	3463	2852	2418	2093	2703	2326	2036	2565	2237	1980	2435	2152	1925	1806
6	3318	2634	2175	1846	3196	2567	2136	1822	2438	2059	1777	2319	1986	1732	2206	1915	1688	1575
7	3074	2385	1938	1625	2964	2327	1905	1606	2215	1841	1569	2111	1780	1532	2014	1720	1496	1389
8	2861	2174	1742	1445	2761	2123	1714	1430	2026	1660	1399	1935	1608	1368	1850	1557	1338	1237
9	2671	1993	1578	1298	2581	1949	1554	1284	1864	1508	1258	1784	1463	1232	1709	1419	1207	1111
10	2504	1838	1439	1174	2421	1799	1419	1163	1724	1379	1140	1653	1340	1118	1586	1302	1096	1006

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	92.0	4.97
6.00	40.9	7.46
8.00	23.0	9.94
10.0	14.7	12.4
12.0	10.2	14.9
14.0	7.51	17.4
16.0	5.75	19.9

Cone of Light Plot



In-Situ Test

In-Situ Test Conditions

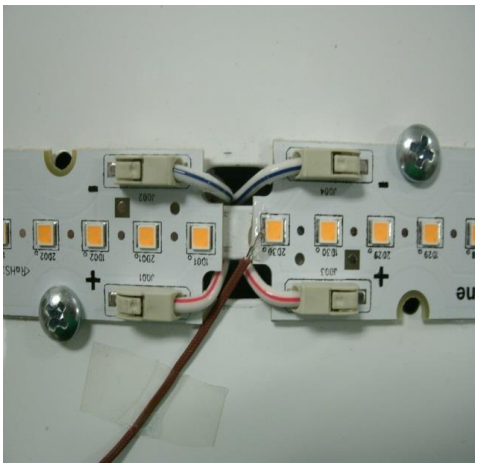
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.3 °C	120.0 VAC	N / A	N / A	N / A	60 Hz	N / A

Summary of Results

LED Temperature:	76.9 °C
Driver Temperature:	67.4 °C
Maximum LED Current:	0.1296 A

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

LED Temperature Location



Driver Temperature Location