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Photometric Test Report

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

Prepared For
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Catalog Number
SP20-11-10D-930-03
Order Number
11087139
Test Number
1187223

Test Date

2015-12-15 - 2015-12-19

Prepared By

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Eric Gaudreau, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.
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Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 3-meter integrating sphere using the 4π geometry method.
Absorption correction was employed for Sphere measurement



Lamp Description: Silver aluminum heatsink with clear radial linear prismatic lens
Lamp: One (1) white LED
Mounting: VBU

Lamp



Lamp Characteristics

Luminous Diameter: 2.00 in.

Summary of Results

Integrating Sphere

Luminous Flux: 544 Lumens
Efficacy: 51.5 lm/w
CCT: 2949 K
CRI (Ra): 94.4

Distribution

Total Lamp Output: 527.4 Lumens
Lamp Efficacy: 49.6 lm/w
Maximum Candela: 9936 Candela

Electrical Data at 120 VAC

Test Temperature: 24.7 °C
Voltage: 120.0 VAC
Current: 0.09460 A
Power: 10.56 W
Power Factor: 0.930
Frequency: 60 Hz
Current THD: 38.7 %



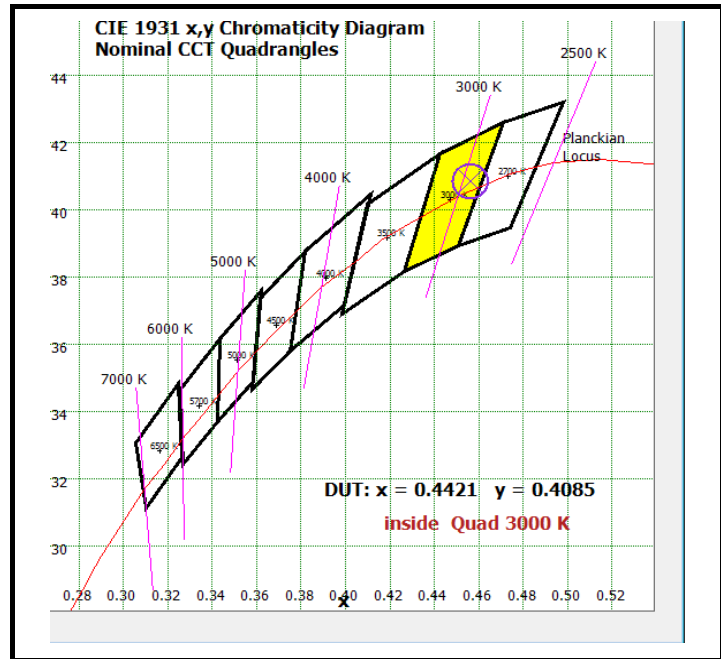
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	120.0 VAC	0.09460 A	10.56 W	0.930	60 Hz	38.7 %

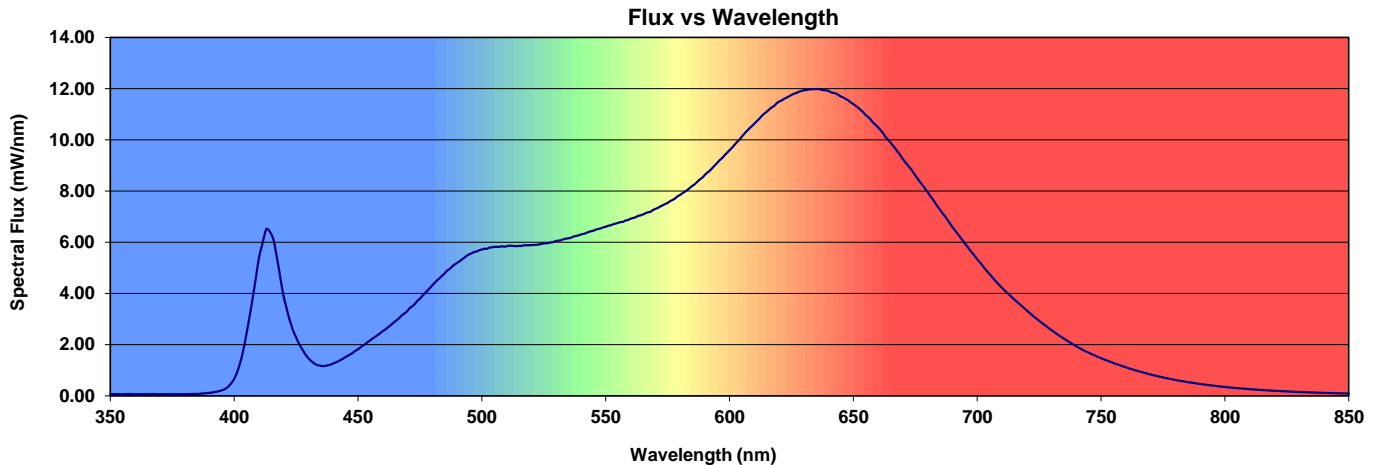
Summary of Results

Total Output:	544 Lumens
Efficacy:	51.5 lm/w
CCT:	2949 K
CRI (Ra):	94.4
CRI (R9):	97.9
Chromaticity (x):	0.4421
Chromaticity (y):	0.4085
Chromaticity (u):	0.2520
Chromaticity (v):	0.3493
Chromaticity (u')	0.2520
Chromaticity (v')	0.5239
Duv:	0.0008



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
94.4	94.3	95.1	95.9	92.9	92.7	89.7	96.8	98.1	97.9	88.5	88.5	78.9	93.9	98.2





Distribution - Goniophotometer

Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.5 °C	120.0 VAC	0.09490 A	10.64 W	0.934	60 Hz	36.9 %

Summary of Results

Spacing Criteria

0-180: 0.19
90-270: 0.19

Total Lumen Output:

527.4 Lumens

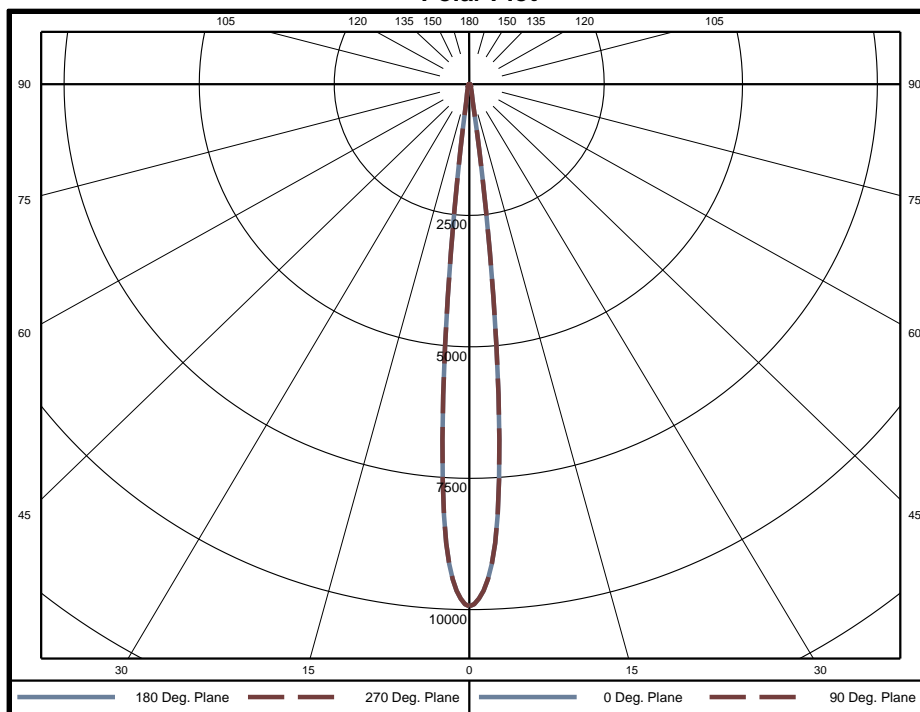
Lamp Efficacy:

49.6 lm/w

Maximum Candela:

9936 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	194.2	36.8%	60-65	10.8	2.0%	120-125	0	0.0%
5-10	141.5	26.8%	65-70	10.8	2.0%	125-130	0	0.0%
10-15	27.5	5.2%	70-75	9.5	1.8%	130-135	0	0.0%
15-20	19.6	3.7%	75-80	7.1	1.3%	135-140	0	0.0%
20-25	15.7	3.0%	80-85	4.1	0.8%	140-145	0	0.0%
25-30	14.3	2.7%	85-90	0.9	0.2%	145-150	0	0.0%
30-35	15.8	3.0%	90-95	0	0.0%	150-155	0	0.0%
35-40	16.2	3.1%	95-100	0	0.0%	155-160	0	0.0%
40-45	11.3	2.1%	100-105	0	0.0%	160-165	0	0.0%
45-50	8.4	1.6%	105-110	0	0.0%	165-170	0	0.0%
50-55	9.2	1.7%	110-115	0	0.0%	170-175	0	0.0%
55-60	10.4	2.0%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	445	84.3%
0-60	484	91.8%
0-90	527	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	9936	9936	9936	9936	9936	9936	9936	9936	9936	9936	9936	9936	9936	9936	9936	9936
5	5932	5932	5932	5932	5932	5932	5932	5932	5932	5932	5932	5932	5932	5932	5932	5932
10	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
15	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162	162
20	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
25	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
30	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
35	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
45	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
50	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
55	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
60	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
65	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
70	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
75	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
80	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
85	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
90	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
100	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
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)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	4902000	4902000	4902000
45	16010	16010	16010
55	19170	19170	19170
65	25890	25890	25890
75	30570	30570	30570
85	18210	18210	18210



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	628	628	628	628	613	613	613	613	586	586	586	561	561	561	538	538	538	527
1	600	586	574	563	587	575	564	554	554	545	537	534	527	521	516	511	506	496
2	576	553	534	518	565	544	527	512	527	513	501	512	500	490	497	488	480	472
3	555	527	504	487	545	519	499	483	506	489	475	494	480	468	482	471	461	453
4	538	505	482	464	529	500	478	461	489	470	456	479	463	451	470	457	446	439
5	522	488	464	447	515	484	461	445	475	456	441	467	450	437	459	445	434	427
6	509	474	450	434	503	470	448	432	463	444	429	457	440	427	450	436	424	418
7	497	462	439	423	492	459	437	422	453	434	420	448	431	418	442	427	416	410
8	487	452	430	414	482	449	428	414	444	426	412	440	423	411	435	420	409	404
9	478	443	422	407	473	441	421	407	437	418	405	433	416	404	429	414	403	398
10	470	435	415	401	466	433	414	401	430	412	400	427	410	399	424	409	398	393

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	621	0.769
6.00	276	1.15
8.00	155	1.54
10.0	99.4	1.92
12.0	69.0	2.31
14.0	50.7	2.69
16.0	38.8	3.07

Cone of Light Plot

