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Photometric Test Report

Relevant Standards

IES LM-79-2008, ANSI C82.77-2002, UL 1598-2008
CIE 13.3-1995, CIE 15-2004, ANSI C78.377-2015
IES TM-30-2015

Prepared For

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Catalog Number

4PR-L10/927-DIM1-UNV-L-W-OF-WH-AD

Order Number

12385721

Test Number

12385721.04

Revised:

2018-07-12

Test Date

2018-07-05 - 2018-07-10

Prepared By

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Approved By

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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 2-meter integrating sphere using the 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: Black formed aluminum housing, white reflector, frosted plastic lens enclosure
Lamp: One white LED
Mounting: Recessed
Ballast/Driver: One Philips XI025C070V054DSM5 driver

Luminaire



Luminaire Characteristics

Luminous Diameter: 4.25 in.

Summary of Results

Integrating Sphere

Luminous Flux: 662 Lumens
Efficacy: 58.4 lm/w
CCT: 2748 K
CRI (Ra): 92.2

Distribution

Total Luminaire Output: 650.2 Lumens
Luminaire Efficacy: 57.2 lm/w
Maximum Candela: 270 Candela

Electrical Data at 120 VAC

Test Temperature: 24.7 °C
Voltage: 120.0 VAC
Current: 0.09576 A
Power: 11.33 W
Power Factor: 0.986
Frequency: 60 Hz
Current THD: 14.5 %

In-Situ

LED Temperature: 43.8 °C
Driver Temperature: 41.2 °C
Measured LED Current: 0.2686 A

Temperature is offset to an ambient temperature of 25°C as described in UL1598-2008.

Color Spatial Uniformity

Maximum $\Delta u^*v'$: 0.0004



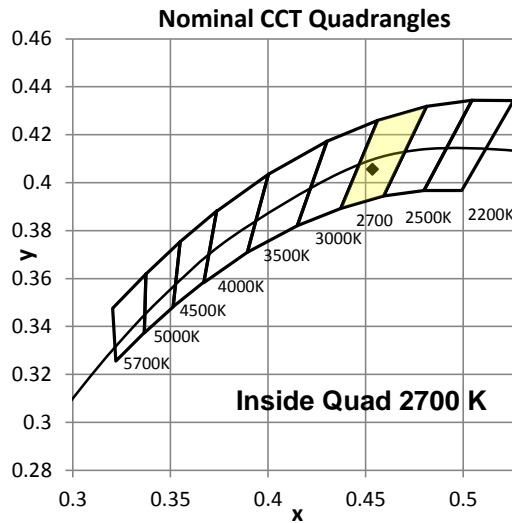
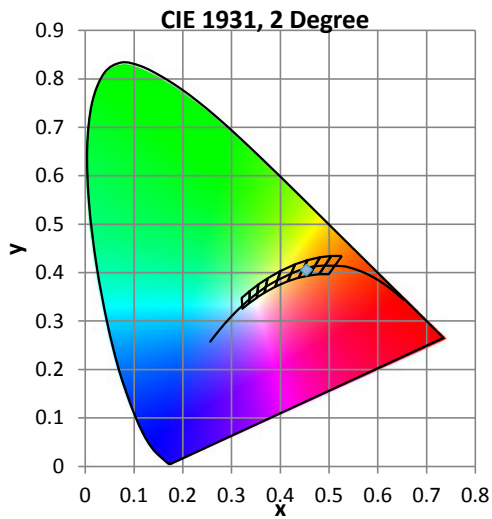
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	120.0 VAC	0.09576 A	11.33 W	0.986	60 Hz	14.5 %

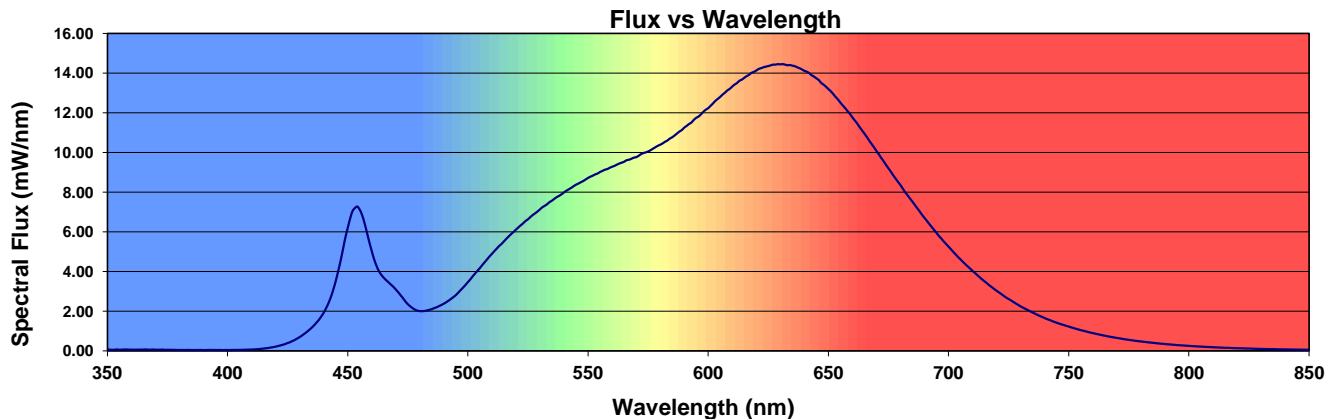
Summary of Results

Total Output:	662 Lumens	Chromaticity (x):	0.4536
Efficacy:	58.4 lm/w	Chromaticity (y):	0.4056
CCT:	2748 K	Chromaticity (u'):	0.2607
CRI (Ra):	92.2	Chromaticity (v'):	0.5245
CRI (R9):	68.6	TM-30 Rf:	88.7
Peak Wavelength:	630 nm	TM-30 Rg:	101.7
Dominant Wavelength:	584 nm	Duv:	-0.0015
S/P Ratio:	1.27		



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
92.2	93.3	94.8	93.1	92.2	91.6	92.1	94.0	86.4	68.6	85.2	91.2	74.8	93.6	94.9	91.6





Distribution - Goniophotometer

Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.09594 A	11.36 W	0.986	60 Hz	14.4 %

Summary of Results

Spacing Criteria

0-180: 1.23
90-270: 1.23

Total Lumen Output:

650.2 Lumens

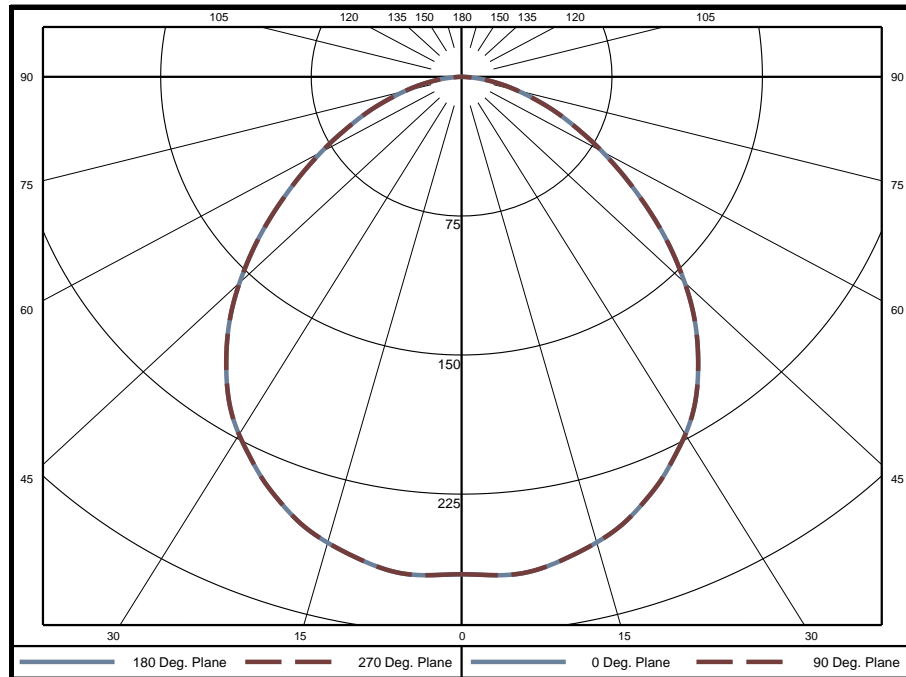
Luminaire Efficacy:

57.2 lm/w

Maximum Candela:

270 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	6.43	1.0%	60-65	34.37	5.3%	120-125	0	0.0%
5-10	19.20	3.0%	65-70	26.49	4.1%	125-130	0	0.0%
10-15	31.20	4.8%	70-75	18.87	2.9%	130-135	0	0.0%
15-20	42.11	6.5%	75-80	12.17	1.9%	135-140	0	0.0%
20-25	51.21	7.9%	80-85	6.17	0.9%	140-145	0	0.0%
25-30	58.23	9.0%	85-90	1.36	0.2%	145-150	0	0.0%
30-35	63.04	9.7%	90-95	0	0.0%	150-155	0	0.0%
35-40	64.53	9.9%	95-100	0	0.0%	155-160	0	0.0%
40-45	62.95	9.7%	100-105	0	0.0%	160-165	0	0.0%
45-50	58.15	8.9%	105-110	0	0.0%	165-170	0	0.0%
50-55	50.96	7.8%	110-115	0	0.0%	170-175	0	0.0%
55-60	42.73	6.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	336	51.7%
0-60	551	84.7%
0-90	650	100.0%
90-180	0	0.0%



Candela Tabulation
Horizontal Angle (Degrees)

Vertical 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	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2	268.2
	5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5	269.5
	10	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4	266.4
	15	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9	259.9
	20	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6	250.6
	25	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8	237.8
	30	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8	222.8
	35	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6	204.6
	40	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3	182.3
	45	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3	157.3
	50	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7	130.7
	55	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4
	60	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3	81.3
	65	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9
	70	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9
	75	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
	80	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8
	85	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
	90	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

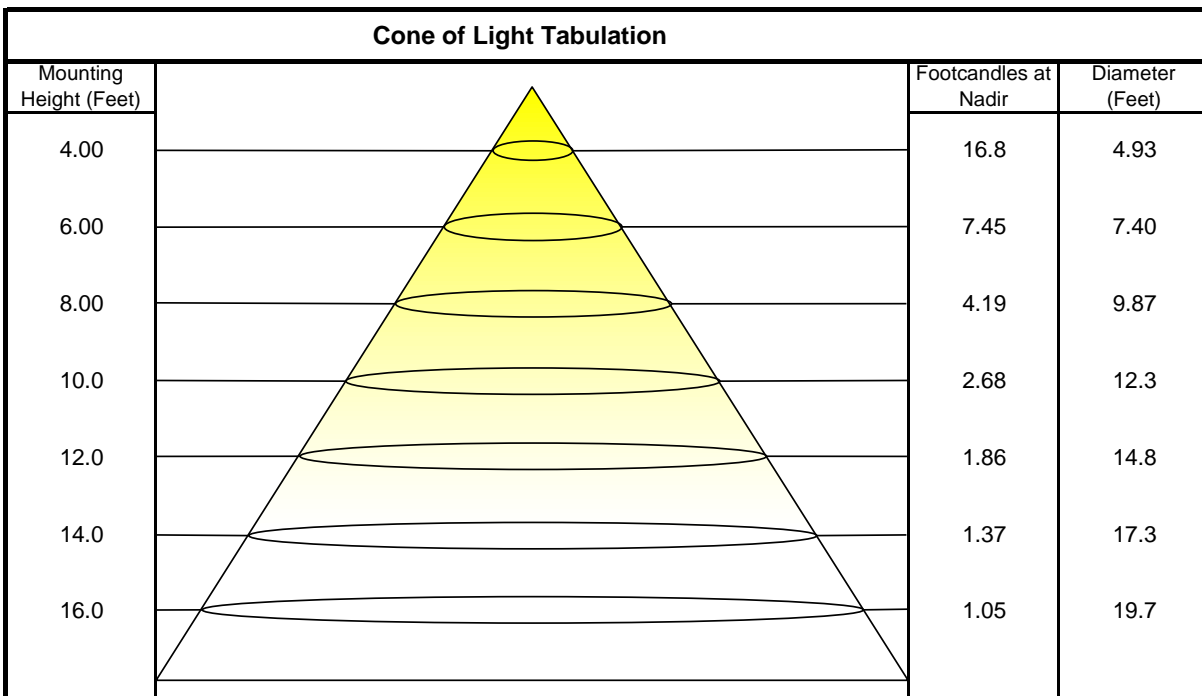
Vertical Angle (Degrees)	0	45	90
	0	29300	29300
	45	24310	24310
	55	19890	19890
	65	15740	15740
	75	12240	12240
	85	7845	7845



Coefficients of Utilization - 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 percent of total lumen output delivered to the task surface **																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88	86
2	101	93	87	81	98	91	85	80	88	83	79	84	80	77	81	78	75	73
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65	63
4	85	74	65	59	83	72	65	59	70	63	58	68	62	57	66	61	56	54
5	78	66	58	51	76	65	57	51	63	56	51	61	55	50	59	54	50	48
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44	42
7	68	55	46	40	66	54	46	40	52	45	40	51	44	40	50	44	39	37
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35	34
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32	30
10	55	43	35	30	54	42	35	30	41	34	30	40	34	29	39	33	29	28

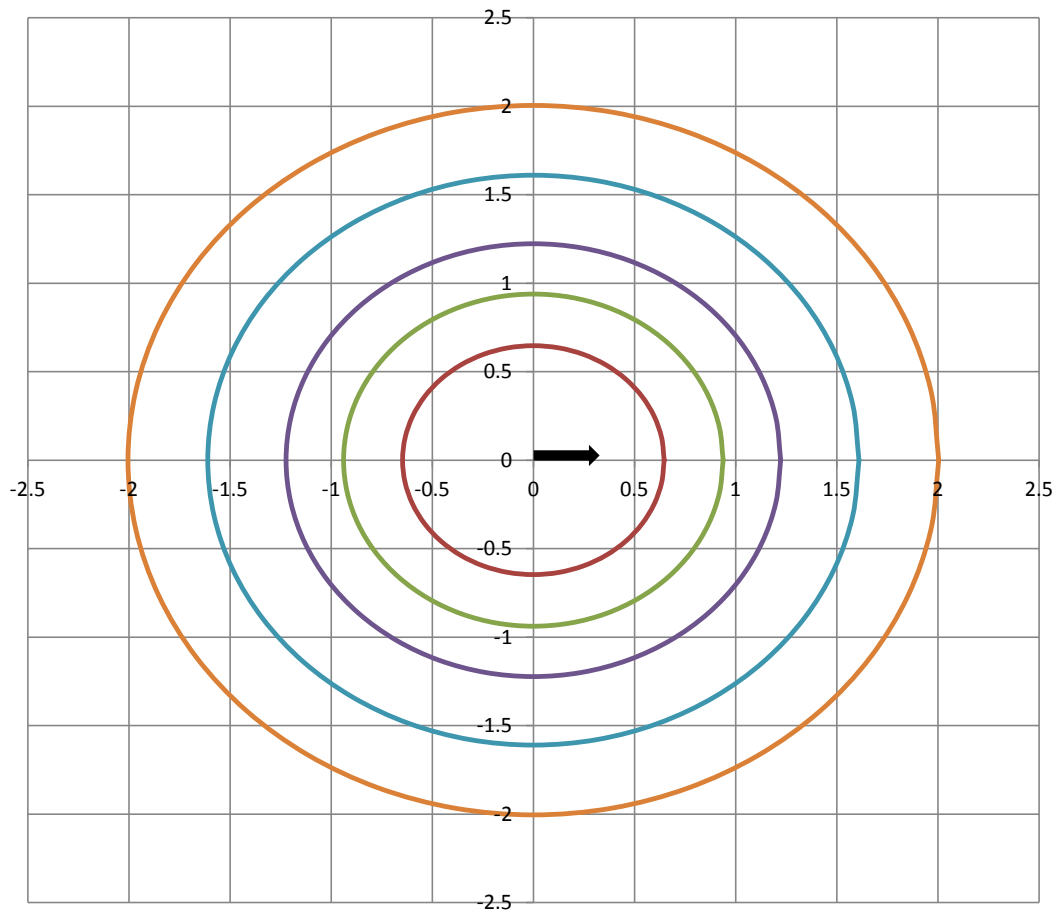
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	268.2 Candela
Central Cone Intensity:	269 Candela
Beam Flux:	449.8 Lumens
Beam Angle (0-180):	98.8 Degrees
Beam Angle (90-270):	98.8 Degrees
Field Angle (0-180):	151.7 Degrees
Field Angle (90-270):	151.7 Degrees



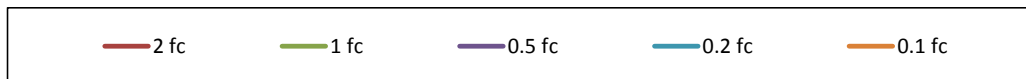


ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height





Color Spatial Uniformity

Color Spatial Uniformity Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.09594 A	11.36 W	0.986	60 Hz	14.4 %

Spatially Averaged Color Coordinates

u'_a : 0.2604

v'_a : 0.5248

Maximum $\Delta u'v'$

0.0004

$\Delta u'v'$ Table

Vertical Angle	H = 0°	H = 90°
0	0.0002	0.0002
1	0.0002	0.0002
2	0.0002	0.0002
3	0.0001	0.0001
4	0.0001	0.0001
5	0.0002	0.0001
6	0.0001	0.0001
7	0.0001	0.0001
8	0.0002	0.0002
9	0.0002	0.0002
10	0.0002	0.0002
11	0.0001	0.0001
12	0.0001	0.0002
13	0.0002	0.0002
14	0.0002	0.0002
15	0.0002	0.0002
16	0.0002	0.0002
17	0.0001	0.0001
18	0.0002	0.0001
19	0.0001	0.0001
20	0.0001	0.0002
21	0.0002	0.0002
22	0.0002	0.0002
23	0.0002	0.0002
24	0.0001	0.0001

Vertical Angle	H = 0°	H = 90°
25	0.0001	0.0001
26	0.0000	0.0001
27	0.0002	0.0001
28	0.0001	0.0001
29	0.0000	0.0001
30	0.0002	0.0001
31	0.0001	0.0001
32	0.0000	0.0001
33	0.0000	0.0002
34	0.0000	0.0001
35	0.0001	0.0002
36	0.0001	0.0002
37	0.0001	0.0001
38	0.0000	0.0001
39	0.0000	0.0001
40	0.0001	0.0001
41	0.0001	0.0001
42	0.0001	0.0000
43	0.0001	0.0001
44	0.0002	0.0002
45	0.0002	0.0002
46	0.0003	0.0003
47	0.0003	0.0002
48	0.0003	0.0003
49	0.0004	0.0003



In-Situ Test

In-Situ Test Conditions

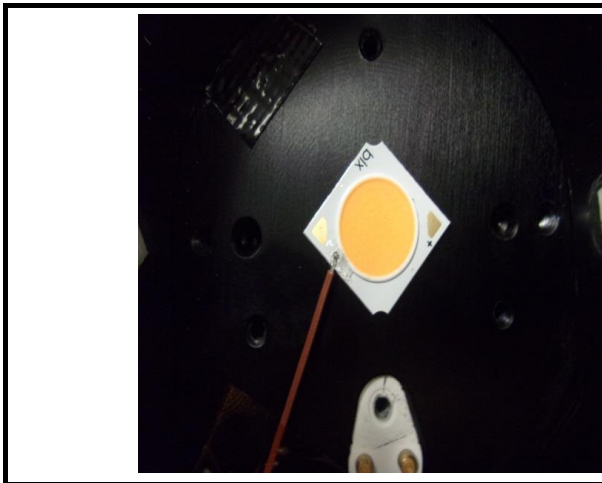
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.1 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

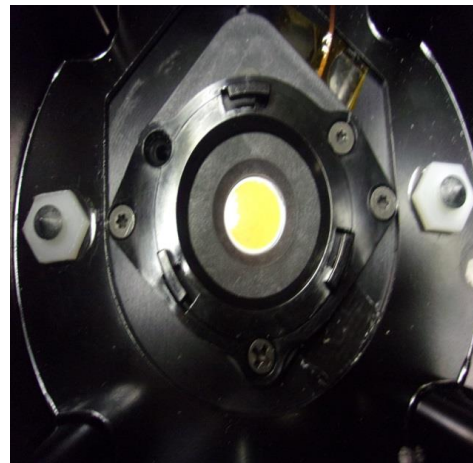
LED Temperature: 43.8 °C
Driver Temperature: 41.2 °C
Measured LED Current: 0.2686 A

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

LED Temperature Location



Thermocouple Reference



Driver Temperature Location

