

Project Number
17.02770



Date
10/10/2017
Rev 1: 11/16/2017

Lab 4
Sphere

Test Sample Description

Catalog Number: P5741-2030K

Description: 6" LED Cylinder 29W light ceiling

*DUT did not meet photometric stabilization criteria. Data trended straight and steady, but peak to peak values within trend varied about 0.7%. Test started after trending for 10 hours.

Revision 1: Changed report format from roadway

Photometry

Test Method: IES LM-79-08 § 10

Preburn Time: 0:30

Time To Stabilize: 10:00*

Total Operating Time: 10:30

Input Voltage (Volts): 119.9

Input Current (Amps): 0.263

Input Wattage (Watts): 29.4

Ambient Temp (°C): 24.9

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1

Preburn Time: 1:00

Time To Stabilize: 1:11

Total Operating Time: 2:11

Input Voltage (Volts): 120.0

Input Current (Amps): 0.261

Input Wattage (Watts): 29.1

Ambient Temp (°C): 24.0

PF @ 120V: 0.936

THD @ 120V (%): 39.0



Hubbell Lighting, Inc.

701 Millennium Boulevard
Greenville, SC 29607
www.hubbellighting.com

Revised By: D. ROBBINS
Revision Approval: P. McCARTHY

This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

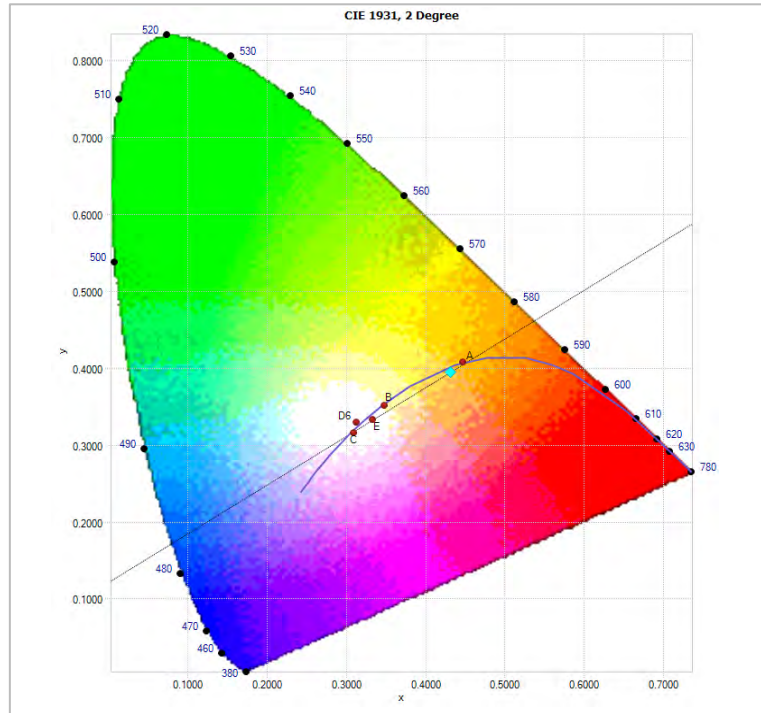


HUBBELL
Lighting

Lamp Cat#: NA
Lamp Desc: 40 - NA 3000K LEDs
Driver Desc: NA

Efficacy: 31.5 LPW S/P Ratio: 1.5 LM/LM

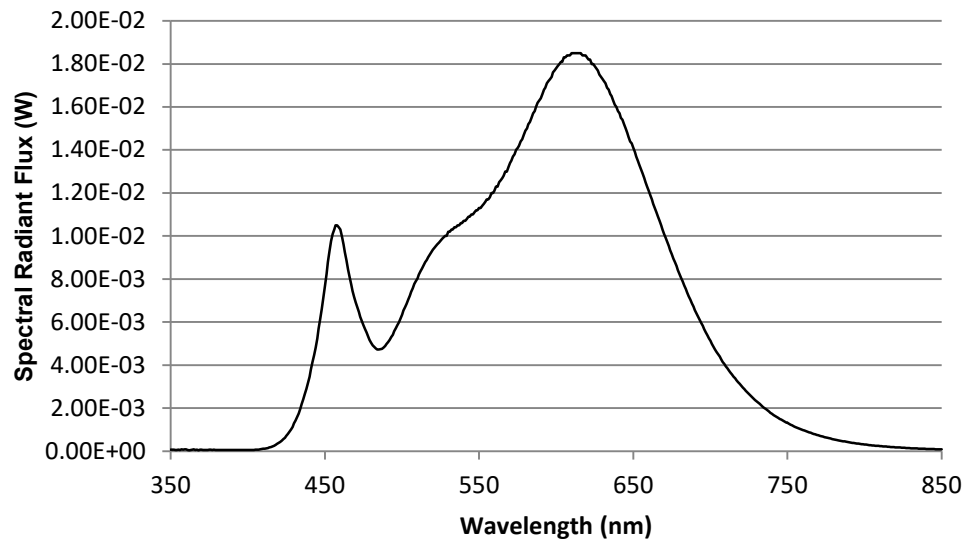
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	3.13	watts
$\Phi(v)$	916	lumens
$\Phi(v')$	1330	lm'
Chrom x	0.4312	
Chrom y	0.3953	
Chrom u	0.2507	
Chrom v	0.3447	
Duv	0.0028	
Chrom u'	0.2507	
Chrom v'	0.517	
CCT	3023	K
Purity	48.1	%
λ (dom)	583.8	nm
FWHM	155.1	nm
λ (peak)	613.4	nm
λ (center)	596.8	nm
λ (centroid)	590.0	nm
SDCM	Cool White	
RA	91	
Corr. Coef.	0.002766568	
Correlation	0.0054	
R1	92.6	
R2	97.9	
R3	96.6	
R4	90.7	
R5	92.5	
R6	95.8	
R7	88.1	
R8	76.4	
R9	49.8	
R10	94.1	
R11	91.9	
R12	81.2	
R13	94.5	
R14	99.3	

Spectral Distribution of Radiant Flux



This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.



HUBBELL
Lighting

701 Millenium Blvd
Greenville, SC 29607
www.hubbellighting.com

REPORT NUMBER: 17.02770

PAGE: 3 OF 8

ISSUE DATE: 10/10/2017

PREPARED FOR: PROGRESS

CATALOG NUMBER: P5741-2030K

LUMINAIRE: 6" Diameter Surface-Mount Cylinder w/ Opal Lens

LAMP: 40- 3000K LEDs

DEG	CANDELA	LUMENS
0	624	
5	621	59
15	596	168
25	527	239
35	350	219
45	191	148
55	74	67
65	9	12
75	2	3
85	0	0
90	0	

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	466	50.9
0- 40	685	74.8
0- 60	900	98.3
0- 90	915	100.0
90-180	0	0.0
0-180	915	100.0

TOTAL INPUT WATTS = 29.371

EFFICACY = 31.2 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.1

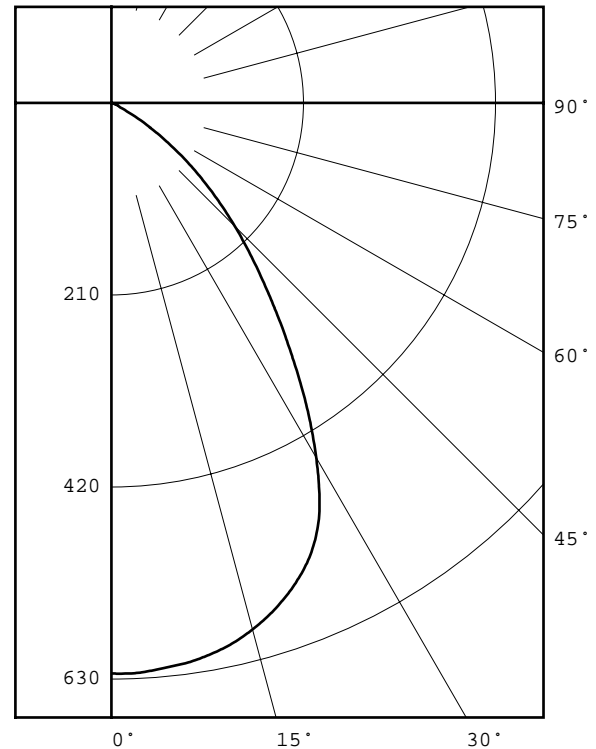
LUMINOUS DIAMETER: 6.000

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	14802.
55	7070.
65	1167.
75	423.
85	0.





HUBBELL
Lighting

701 Millenium Blvd
Greenville, SC 29607
www.hubbellighting.com

REPORT NUMBER: 17.02770
ISSUE DATE: 10/10/2017
PREPARED FOR: PROGRESS

PAGE: 4 OF 8

CANDELA DISTRIBUTION

	0.0
0.0	624
2.5	624
5.0	621
7.5	618
10.0	613
12.5	606
15.0	596
17.5	584
20.0	569
22.5	551
25.0	527
27.5	493
30.0	448
32.5	400
35.0	350
37.5	304
40.0	262
42.5	225
45.0	191
47.5	159
50.0	129
52.5	101
55.0	74
57.5	50
60.0	30
62.5	14
65.0	9
67.5	8
70.0	6
72.5	4
75.0	2
77.5	1
80.0	1
82.5	1
85.0	0
87.5	0
90.0	0



®

HUBBELL
Lighting

701 Millenium Blvd
Greenville, SC 29607
www.hubbellighting.com

REPORT NUMBER: 17.02770
ISSUE DATE: 10/10/2017
PREPARED FOR: PROGRESS

PAGE: 5 OF 8

ZONAL LUMEN SUMMARY

0- 5	15.
5- 10	44.
10- 15	72.
15- 20	96.
20- 25	115.
25- 30	124.
30- 35	117.
35- 40	102.
40- 45	83.
45- 50	64.
50- 55	44.
55- 60	24.
60- 65	8.
65- 70	4.
70- 75	2.
75- 80	1.
80- 85	0.
85- 90	0.



HUBBELL
Lighting

701 Millenium Blvd
Greenville, SC 29607
www.hubbellighting.com

REPORT NUMBER: 17.02770
ISSUE DATE: 10/10/2017
PREPARED FOR: PROGRESS

PAGE: 6 OF 8

5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	15
5- 10	44
10- 15	72
15- 20	96
20- 25	115
25- 30	124
30- 35	117
35- 40	102
40- 45	83
45- 50	64
50- 55	44
55- 60	24
60- 65	8
65- 70	4
70- 75	2
75- 80	1
80- 85	0
85- 90	0
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	59
0- 20	227
0- 30	466
0- 40	685
0- 50	833
0- 60	900
0- 70	912
0- 80	915
0- 90	915
0-100	915
0-110	915
0-120	915
0-130	915
0-140	915
0-150	915
0-160	915
0-170	915
0-180	915



HUBBELL
Lighting

701 Millenium Blvd
Greenville, SC 29607
www.hubbellighting.com

REPORT NUMBER: 17.02770
ISSUE DATE: 10/10/2017

PAGE: 7 OF 8

PREPARED FOR: PROGRESS

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0		
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0	
0	119	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	102	102	102	100
1	112	109	106	104	104	110	107	104	102	103	101	99	99	99	98	96	96	94	93	91
2	106	100	95	91	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82	82
3	99	91	85	81	81	97	90	84	80	87	82	79	85	81	77	82	79	76	74	74
4	93	84	77	72	72	91	82	76	72	80	75	71	78	74	70	76	72	69	67	67
5	87	77	70	65	65	85	76	69	65	74	68	64	72	67	63	70	66	63	61	61
6	81	71	64	59	59	80	70	63	58	68	62	58	67	62	58	65	61	57	56	56
7	76	65	58	53	53	75	65	58	53	63	57	53	62	57	53	61	56	52	51	51
8	72	61	54	49	49	71	60	53	49	59	53	49	58	52	48	57	52	48	47	47
9	68	57	50	45	45	67	56	49	45	55	49	45	54	49	45	53	48	44	43	43
10	64	53	46	42	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40	40

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

Project Number
17.02770



HUBBELL
Lighting

Date
10/10/2017

Rev 1: 11/16/2017

Goniophotometer Calibration

Calibration Lamp : Osram ST8-HA4-250-840 22 W/4000 K

Lamp Number: RM B6-28

Ballast: Vossloh Schwabe LN 36.149

Ballast Number: RM B6-28

Calibration Voltage/Frequency: 220Vac / 50hz

Total Luminous Flux: 2463 Lumens

Calibration Date: 01/19/2017

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	LMT/GO-DS 1600 Lab 4- Test Dist.: 31.0'	10B6231	2/17/2019
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27074V	11/2/2017
<i>Power Source</i>	Chroma / 61604	616040003897	10/27/2017
<i>Thermometer</i>	LMT / ATS-4Ch	10B623-3	12/14/2017

Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10

Lamp Number: SCL-1400-J136

Calibration Current: 2.679 Amps

Total Luminous Flux: 1427 Lumens

Test Equipment Used - Color & SPD; THD & Power Factor

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>3-Meter Sphere</i>	Labsphere / LMS-3M	N/A	Calibrated Weekly
<i>Thermometer</i>	National Instruments / USB TC01	1912751	11/2/2017
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	11/1/2017
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Power Supply PF/THD</i>	Voltage-Regulated House Power	N/A	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	0331159372	10/31/2017
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	12/1/2017
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

Hubbell Lighting, Inc.

701 Millennium Boulevard
Greenville, SC 29607
www.hubbelllighting.com

This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.