

Project Number
16.00028



Date
1/12/2016

LAB 6
Sphere

Test Sample Description

Catalog Number: P5644-3030K9

Description: 6" Square Up/Down LED Cylinder with Type V Distribution and LEDs moved closer to opening.

Photometry

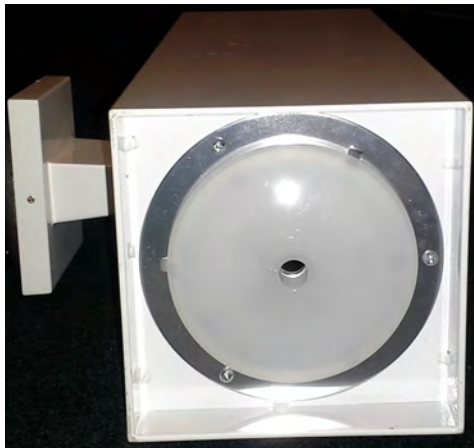
Test Method: IES LM-79-08 § 10
Preburn Time: 0:15
Time To Stabilize: 3:05
Total Operating Time: 4:05

Input Voltage (Volts): 120.2
Input Current (Amps): 0.542
Input Wattage (Watts): 60.4
Ambient Temp (°C): 24.6
PF @ 277V: 0.989
THD @ 277V (%): 7.94

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 10:00
Time To Stabilize: 1:31
Total Operating Time: 11:31

Input Voltage (Volts): 120.0
Input Current (Amps): 0.538
Input Wattage (Watts): 59.8
Ambient Temp (°C): 24.7



Hubbell Lighting, Inc.

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

Checked (sphere): B. LEE
Checked (photometry): D. BLACK / D. ROBBINS
Approved: M. WASHBURN



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

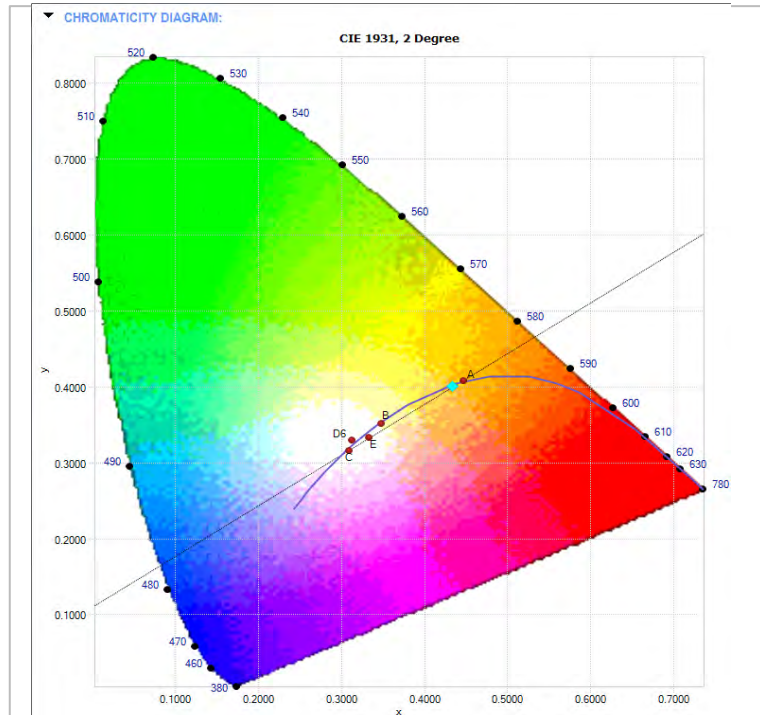


Lamp Cat#: 93058664-3130
 Lamp Desc: 40 - Nichia 3000K LEDs
 Driver Desc: N/A

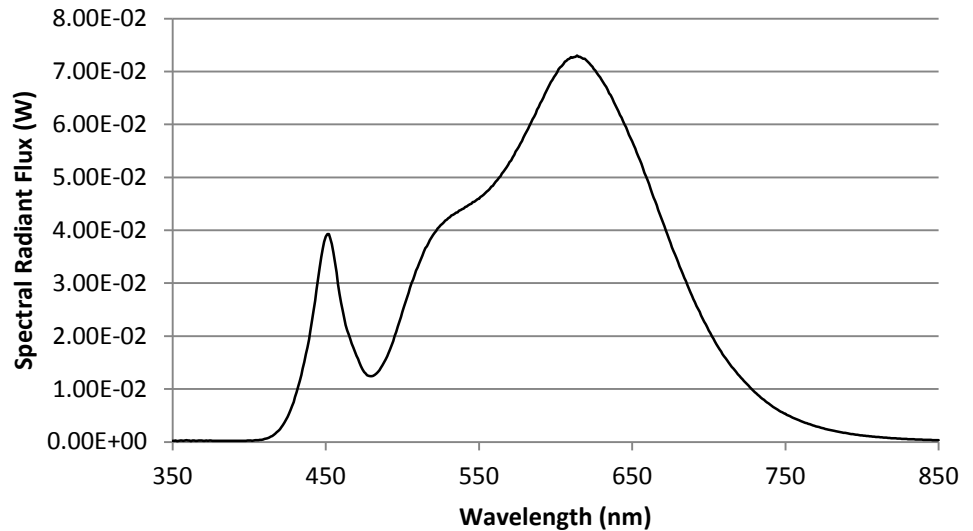
Efficacy: 60.9 LPW S/P Ratio: 1.4 LM/LM

Spectral Results

Name	Value	Unit
Φ	12.37	watts
Φ(v)	3641	lumens
Φ(v')	5072	lm'
Chrom x	0.4338	
Chrom y	0.4005	
Chrom u	0.2501	
Chrom v	0.3463	
Duv	0.0011	
Chrom u'	0.2501	
Chrom v'	0.5195	
CCT	3021	K
Purity	50.4	%
λ (dom)	583.1	nm
FWHM	161.7	nm
λ (peak)	614.3	nm
λ (center)	595.7	nm
λ (centroid)	591.4	nm
SDCM	Cool White	
RA	91	
Corr. Coef.	0.001024599	
Correlation	0.0054	
R1	91.4	
R2	94.3	
R3	96.0	
R4	91.9	
R5	91.0	
R6	93.2	
R7	90.7	
R8	78.3	
R9	49.5	
R10	85.9	
R11	93.0	
R12	79.3	
R13	92.2	
R14	97.1	



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 Millennium Blvd
Greenville, SC 29607
www.hubbellighting.com



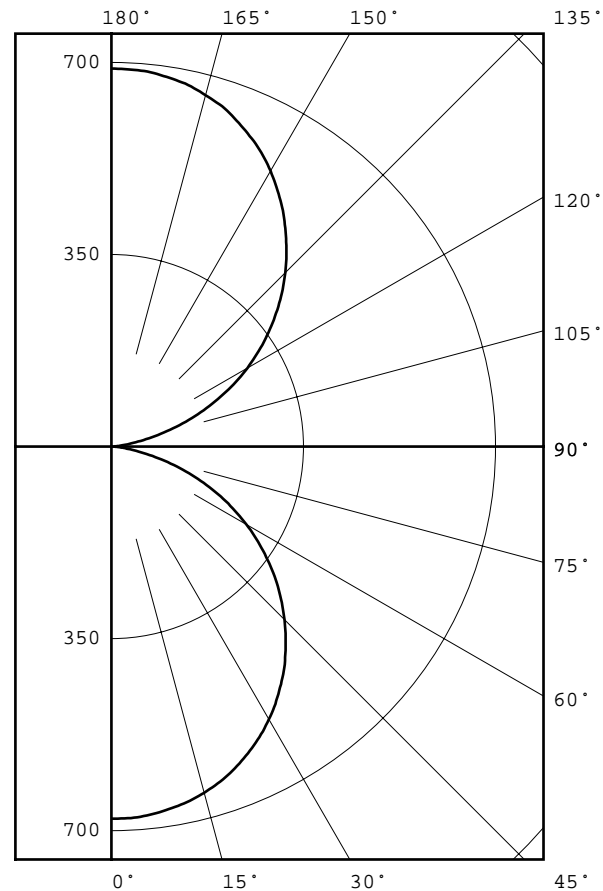
REPORT NUMBER: 16.00028
ISSUE DATE: 01/12/16
PREPARED FOR: PROGRESS
CATALOG NUMBER: P5644-3030K9
LUMINAIRE: 6" Square Up/Down LED Cylinder with Type V Distribution and LEDs moved closer to opening.
LAMP CAT. NO.: 93058664-3130
LAMP: 40 - Nichia 3000K AC Module LEDs
BALLAST CAT. NO.: ECU-052S105DT
Refractor: Sabic polycarbonate
LUX7430C-NAT Lens- #93047259-3
MOUNTING: Wall
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

PAGE: 3 OF 9

DEG	CANDELA	LUMENS
0	678	
5	676	64
15	653	184
25	606	279
35	536	335
45	446	344
55	341	305
65	225	221
75	100	107
85	16	21
90	3	
95	13	18
105	99	106
115	225	222
125	343	306
135	448	345
145	540	337
155	614	283
165	663	187
175	687	65
180	689	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	528	14.1
0- 40	863	23.1
0- 60	1512	40.5
0- 90	1861	49.9
90-120	347	9.3
90-130	653	17.5
90-150	1335	35.8
90-180	1871	50.1
0-180	3731	100.0

TOTAL INPUT WATTS = 60.4
EFFICACY = 61.8 Lm/W
CIE TYPE - DIRECT-INDIRECT
LUMINAIRE SPACING CRITERION = 1.3





®

HUBBELL
Lighting

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



REPORT NUMBER: 16.00028
ISSUE DATE: 01/12/16
PREPARED FOR: PROGRESS

PAGE: 4 OF 9

PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 5.750 5.750

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	29559.
55	27861.
65	24950.
75	18107.
85	8603.



®

HUBBELL
Lighting

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



REPORT NUMBER: 16.00028
ISSUE DATE: 01/12/16
PREPARED FOR: PROGRESS

PAGE: 5 OF 9

CANDELA DISTRIBUTION

	0.0
0.0	678
5.0	676
10.0	667
15.0	653
20.0	633
25.0	606
30.0	574
35.0	536
40.0	493
45.0	446
50.0	396
55.0	341
60.0	284
65.0	225
70.0	162
75.0	100
80.0	46
85.0	16
90.0	3
95.0	13
100.0	45
105.0	99
110.0	162
115.0	225
120.0	286
125.0	343
130.0	397
135.0	448
140.0	495
145.0	540
150.0	580
155.0	614
160.0	642
165.0	663
170.0	678
175.0	687
180.0	689



HUBBELL
Lighting

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



REPORT NUMBER: 16.00028
ISSUE DATE: 01/12/16
PREPARED FOR: PROGRESS

PAGE: 6 OF 9

ZONAL LUMEN SUMMARY

0- 5	16.
5- 10	48.
10- 15	78.
15- 20	106.
20- 25	130.
25- 30	149.
30- 35	164.
35- 40	172.
40- 45	174.
45- 50	170.
50- 55	160.
55- 60	144.
60- 65	124.
65- 70	98.
70- 75	68.
75- 80	38.
80- 85	16.
85- 90	5.
90- 95	4.
95-100	15.
100-105	38.
105-110	68.
110-115	98.
115-120	124.
120-125	145.
125-130	161.
130-135	171.
135-140	175.
140-145	173.
145-150	165.
150-155	151.
155-160	132.
160-165	108.
165-170	80.
170-175	49.
175-180	16.



HUBBELL
Lighting

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



REPORT NUMBER: 16.00028
ISSUE DATE: 01/12/16
PREPARED FOR: PROGRESS

PAGE: 7 OF 9

5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	16
5- 10	48
10- 15	78
15- 20	106
20- 25	130
25- 30	149
30- 35	164
35- 40	172
40- 45	174
45- 50	170
50- 55	160
55- 60	144
60- 65	124
65- 70	98
70- 75	68
75- 80	38
80- 85	16
85- 90	5
90- 95	4
95-100	15
100-105	38
105-110	68
110-115	98
115-120	124
120-125	145
125-130	161
130-135	171
135-140	175
140-145	173
145-150	165
150-155	151
155-160	132
160-165	108
165-170	80
170-175	49
175-180	16

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	64
0- 20	249
0- 30	528
0- 40	863
0- 50	1207
0- 60	1512
0- 70	1733
0- 80	1840
0- 90	1861
0-100	1879
0-110	1985
0-120	2207
0-130	2513
0-140	2859
0-150	3196
0-160	3479
0-170	3666
0-180	3731



HUBBELL
Lighting

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



REPORT NUMBER: 16.00028
ISSUE DATE: 01/12/16

PAGE: 8 OF 9

PREPARED FOR: PROGRESS

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	98	94	90	86	90	87	83	80	73	71	69	61	59	58	50	49	48	42
2	89	82	76	71	82	76	70	66	64	60	57	54	51	48	44	42	40	35
3	81	72	65	59	75	67	60	55	57	52	48	47	44	41	39	36	34	30
4	74	63	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29	26
5	68	57	48	42	63	52	45	40	45	39	35	38	33	30	31	28	25	22
6	63	51	43	37	58	47	40	35	40	35	30	34	30	26	28	25	22	19
7	58	46	38	32	53	43	35	30	37	31	27	31	27	23	26	22	20	17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	18	15
9	50	38	30	25	46	35	28	24	30	25	21	26	22	19	22	18	16	14
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14	12

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
16.00028



HUBBELL
Lighting

Date
1/12/2016

Goniophotometer Calibration

Calibration Lamp: GE 1000W, 120V, T6, CL (FEL)

Lamp Number: ITL78966-1000-14

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 23413.0 Lumens

Calibration Date: 07/18/2015 08/04/2015 07/18/2015

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL / HLI LAB 6 - Test Distance: 31.3'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27076V	11/10/2016
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	1912745	11/10/2016

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	11/10/2016
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	11/10/2016
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	031159372	11/10/2016
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148605	11/10/2016
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

Hubbell Lighting, Inc.

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

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