

Project Number
16.00021



Date
1/8/2016

LAB 6
Sphere

Test Sample Description

Catalog Number: P5641-3030K9

Description: 6" diameter downlight wall mount LED cylinder with LEDs moved closer to opening.

Photometry

Test Method: IES LM-79-08 § 10
Preburn Time: 0:00
Time To Stabilize: 1:41
Total Operating Time: 1:51

Input Voltage (Volts): 120.1
Input Current (Amps): 0.263
Input Wattage (Watts): 29.3
Ambient Temp (°C): 24.6

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 20:00
Time To Stabilize: 2:45
Total Operating Time: 23:00

Input Voltage (Volts): 120.0
Input Current (Amps): 0.262
Input Wattage (Watts): 29.2
Ambient Temp (°C): 24.4



Hubbell Lighting, Inc.

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

Checked (sphere): M.ELLMANN
Checked (photometry): D.ROBBINS
Approved: D. BLACK



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Lamp Cat#: 93058664-3130

Lamp Desc: 40 - Nichia 3000K LEDs

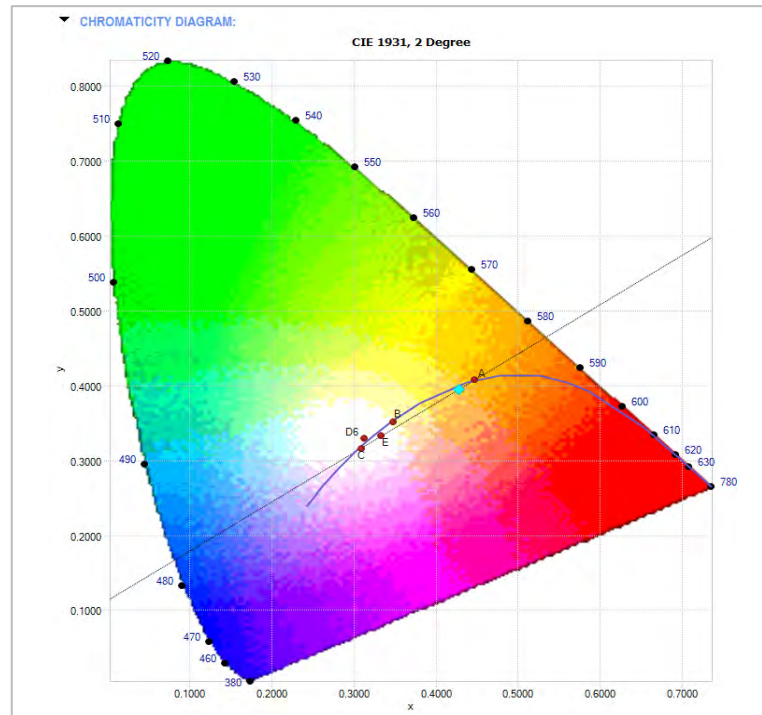
Driver Desc: CC driver

Efficacy: 46.0 LPW

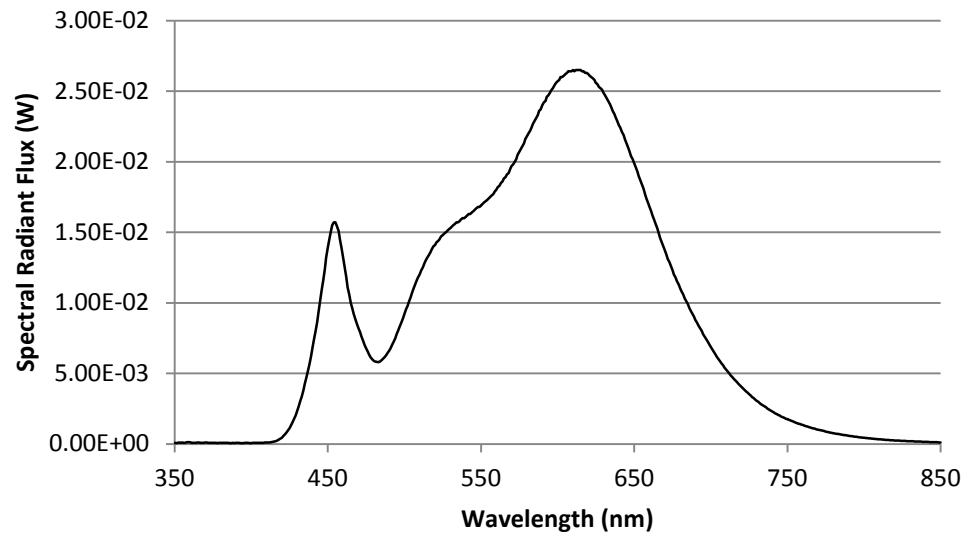
S/P Ratio: 1.4 LM'/LM

Spectral Results

Name	Value	Unit
Φ	4.50	watts
$\Phi(v)$	1342	lumens
$\Phi(v')$	1935	lm'
Chrom x	0.4281	
Chrom y	0.3957	
Chrom u	0.2484	
Chrom v	0.3445	
Duv	0.0027	
Chrom u'	0.2484	
Chrom v'	0.5167	
CCT	3084	K
Purity	47.2	%
λ (dom)	583.3	nm
FWHM	156.6	nm
λ (peak)	613.4	nm
λ (center)	593.4	nm
λ (centroid)	588.1	nm
SDCM	Cool White	
RA	91	
Corr. Coef.	0.002123672	
Correlation	0.0054	
R1	91.1	
R2	95.6	
R3	97.6	
R4	90.6	
R5	90.9	
R6	94.3	
R7	89.2	
R8	76.2	
R9	46.4	
R10	88.8	
R11	91.5	
R12	78.7	
R13	92.6	
R14	98.6	



Spectral Distribution of Radiant Flux



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REPORT NUMBER: 16.00021

PAGE: 3 OF 8

ISSUE DATE: 01/08/16

PREPARED FOR: PROGRESS

CATALOG NUMBER: P5641-3030K9

LUMINAIRE: 6" diameter downlight wall mount LED cylinder with LEDs moved closer to opening.

LAMP CAT. NO.: 93058664-3130

LAMP: 40- Nichia 3000K LEDs

REFRACTOR: Sabic polycarbonate LUX7430C-NAT, lens 93047259-3

MOUNTING: wall

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

DEG	CANDELA	LUMENS
0	739	
5	743	71
15	741	208
25	626	285
35	423	266
45	273	211
55	151	141
65	101	100
75	53	56
85	15	17
90	0	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	564	41.6
0- 40	830	61.2
0- 60	1183	87.2
0- 90	1355	100.0
90-180	0	0.0
0-180	1355	100.0

TOTAL INPUT WATTS = 29.3

EFFICACY = 46.2 Lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.1

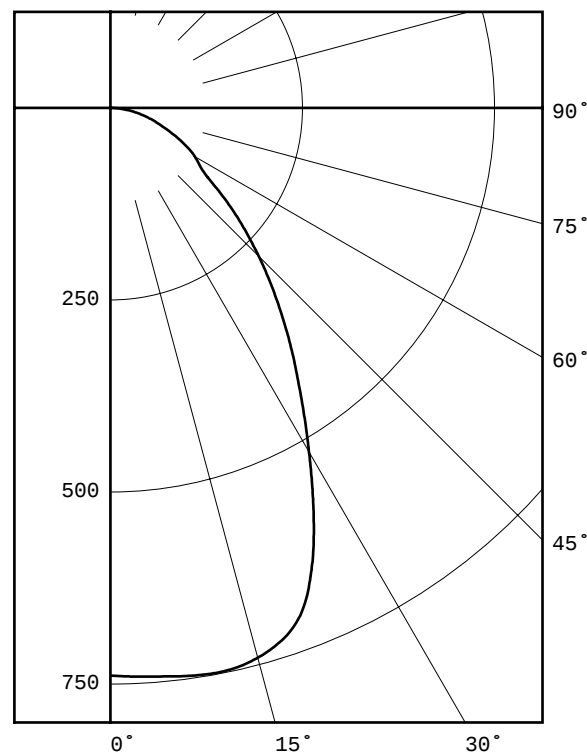
LUMINOUS DIAMETER: 6.000

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	21157.
55	14427.
65	13097.
75	11222.
85	9431.





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PAGE: 4 OF 8

CANDELA DISTRIBUTION

	0.0
0.0	739
2.5	741
5.0	743
7.5	746
10.0	748
12.5	747
15.0	741
17.5	730
20.0	711
22.5	675
25.0	626
27.5	571
30.0	517
32.5	468
35.0	423
37.5	383
40.0	344
42.5	308
45.0	273
47.5	240
50.0	209
52.5	178
55.0	151
57.5	137
60.0	127
62.5	115
65.0	101
67.5	87
70.0	74
72.5	63
75.0	53
77.5	43
80.0	33
82.5	24
85.0	15
87.5	7
90.0	0



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REPORT NUMBER: 16.00021
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PAGE: 5 OF 8

ZONAL LUMEN SUMMARY

0- 5	18.
5- 10	53.
10- 15	88.
15- 20	120.
20- 25	141.
25- 30	144.
30- 35	138.
35- 40	128.
40- 45	114.
45- 50	97.
50- 55	78.
55- 60	64.
60- 65	56.
65- 70	44.
70- 75	33.
75- 80	23.
80- 85	13.
85- 90	4.



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ISSUE DATE: 01/08/16
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PAGE: 6 OF 8

**5-DEGREE
ZONAL LUMEN SUMMARY**

0- 5	18
5- 10	53
10- 15	88
15- 20	120
20- 25	141
25- 30	144
30- 35	138
35- 40	128
40- 45	114
45- 50	97
50- 55	78
55- 60	64
60- 65	56
65- 70	44
70- 75	33
75- 80	23
80- 85	13
85- 90	4

**10-DEGREE
ZONAL LUMEN SUMMARY**

0- 10	71
0- 20	279
0- 30	564
0- 40	830
0- 50	1041
0- 60	1183
0- 70	1282
0- 80	1338
0- 90	1355



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REPORT NUMBER: 16.00021
ISSUE DATE: 01/08/16

PAGE: 7 OF 8

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC RW	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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76
3	95	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69	67
4	88	77	70	64	86	76	69	63	74	67	62	71	66	62	69	65	61	59
5	82	70	62	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49	47
7	71	59	51	46	70	58	51	46	57	50	45	55	49	45	54	49	45	43
8	67	55	47	42	65	54	47	42	53	46	41	51	45	41	50	45	41	39
9	63	51	43	38	61	50	43	38	49	42	38	48	42	38	47	42	38	36
10	59	47	40	35	58	47	40	35	46	39	35	45	39	35	44	39	35	33

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.

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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

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

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