

Project Number  
16.02269



Date  
8/15/2016

Lab 6  
Sphere

### Test Sample Description

Catalog Number: P8022-2830K  
Description: 7.25 LED Flush Mount (SAMPLE A)

### Photometry

Test Method: IES LM-79-08 § 10  
Preburn Time: 00:20  
Time To Stabilize: 0:46  
Total Operating Time: 2:12  
  
Input Voltage (Volts): 120.1  
Input Current (Amps): 0.146  
Input Wattage (Watts): 17.3  
Ambient Temp (°C): 24.0

### Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1  
Preburn Time: 8:00  
Time To Stabilize: 0:57  
Total Operating Time: 8:57  
  
Input Voltage (Volts): 120.0  
Input Current (Amps): 0.144  
Input Wattage (Watts): 17.0  
Ambient Temp (°C): 24.1



### Hubbell Lighting, Inc.

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

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



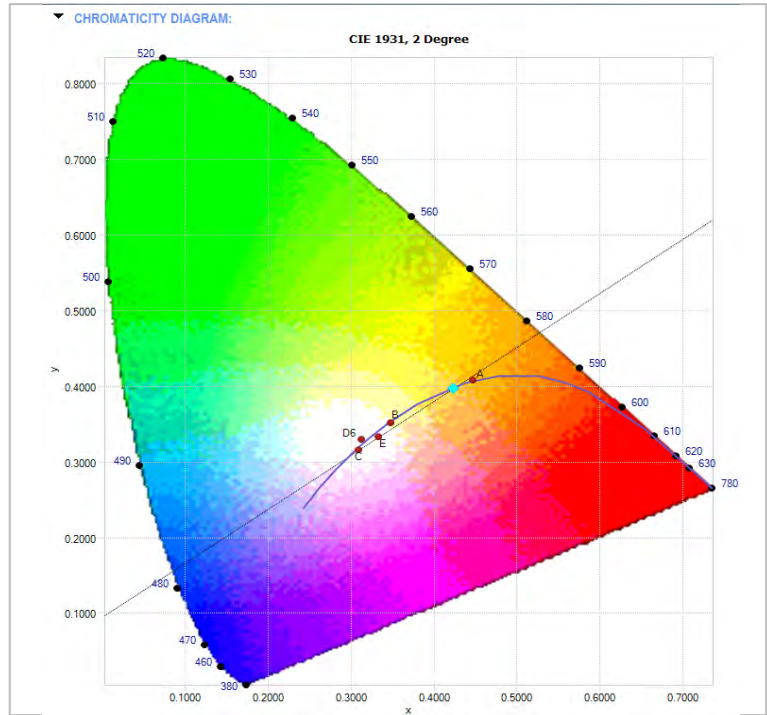


Lamp Cat#: N/A  
 Lamp Desc: 40 - Nichia 3000K LEDs  
 Driver Desc: N/A

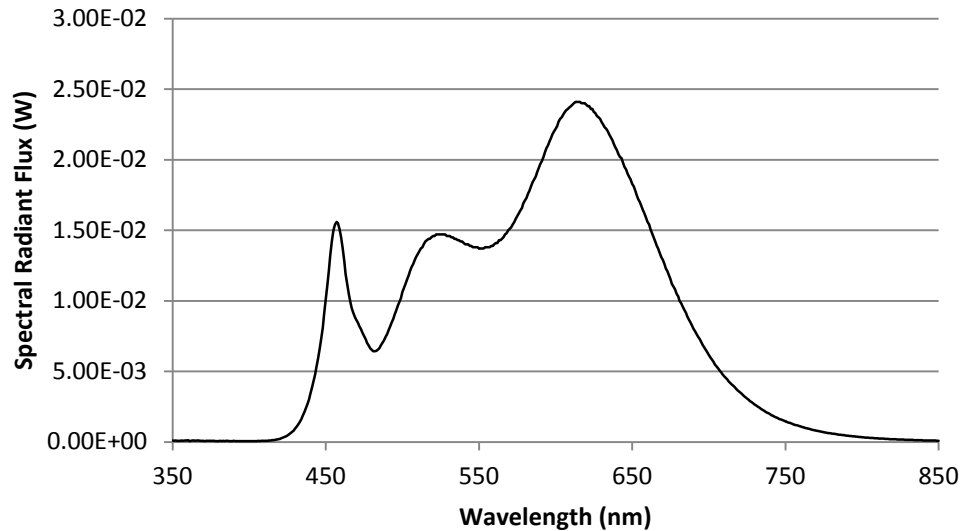
Efficacy: 68.8 LPW      S/P Ratio: 1.6 LM/LM

**Spectral Results**

Name	Value	Unit
$\Phi$	4.02	watts
$\Phi(v)$	1169	lumens
$\Phi(v')$	1861	lm'
Chrom x	0.4237	
Chrom y	0.3977	
Chrom u	0.2447	
Chrom v	0.3446	
Duv	0.0008	
Chrom u'	0.2447	
Chrom v'	0.5169	
CCT	3182	K
Purity	46.5	%
$\lambda$ (dom)	582.3	nm
FWHM	168.2	nm
$\lambda$ (peak)	614.8	nm
$\lambda$ (center)	589.0	nm
$\lambda$ (centroid)	587.5	nm
SDCM	Cool White	
RA	94	
Corr. Coef.	0.000586377	
Correlation	0.0054	
R1	97.3	
R2	97.0	
R3	96.4	
R4	97.1	
R5	96.6	
R6	91.5	
R7	92.0	
R8	87.3	
R9	73.3	
R10	93.7	
R11	91.2	
R12	82.9	
R13	96.4	
R14	98.5	



**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

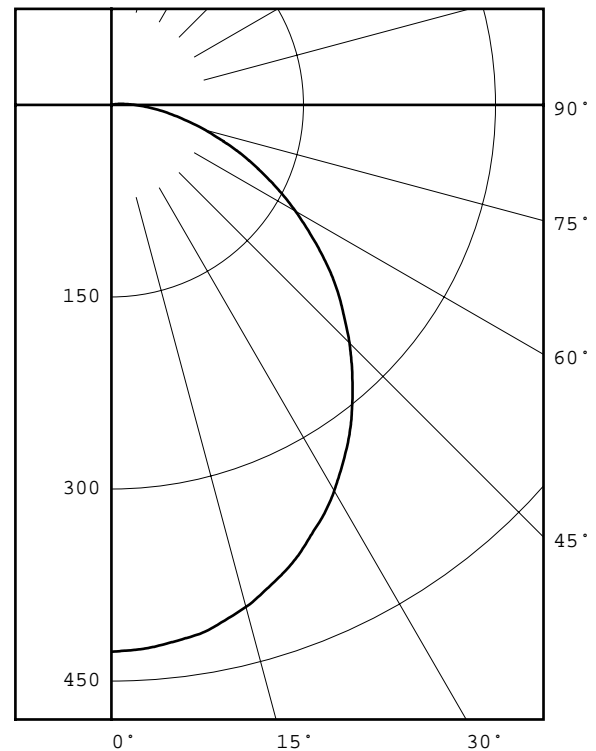


REPORT NUMBER: 16.02269  
ISSUE DATE: 08/15/16  
PREPARED FOR: PROGRESS  
CATALOG NUMBER: P8022-2830K  
LUMINAIRE: 7.25 LED Flush Mount (SAMPLE A)  
LAMP CAT. NO.: n/a  
LAMP: 40-Nichia 3000K LED's  
BALLAST: 1-CC driver  
Refractor Material : Frosted lens  
MOUNTING: Ceiling  
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

PAGE: 3 OF 9

DEG	CANDELA	LUMENS
0	427	
5	424	40
15	406	114
25	370	171
35	322	201
45	263	203
55	199	178
65	134	133
75	76	81
85	33	37
90	19	
95	9	11
105	1	1
115	0	0
125	0	0
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	0

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	325	27.8
0- 40	527	45.0
0- 60	907	77.6
0- 90	1158	99.0
90-120	12	1.0
90-130	12	1.0
90-150	12	1.0
90-180	12	1.0
0-180	1170	100.0



TOTAL INPUT WATTS = 17.3  
EFFICACY = 67.6 Lm/W  
CIE TYPE - DIRECT  
LUMINAIRE SPACING CRITERION = 1.2



®

**HUBBELL**  
Lighting

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



REPORT NUMBER: 16.02269  
ISSUE DATE: 08/15/16  
PREPARED FOR: PROGRESS

PAGE: 4 OF 9

LUMINOUS DIAMETER: 4.500  
HEIGHT OF SIDE : 0.375

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	32759.
55	29353.
65	25164.
75	20493.
85	16670.



**HUBBELL**  
Lighting

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



REPORT NUMBER: 16.02269  
ISSUE DATE: 08/15/16  
PREPARED FOR: PROGRESS

PAGE: 5 OF 9

CANDELA DISTRIBUTION

	0.0
0.0	427
5.0	424
10.0	418
15.0	406
20.0	390
25.0	370
30.0	348
35.0	322
40.0	293
45.0	263
50.0	232
55.0	199
60.0	166
65.0	134
70.0	104
75.0	76
80.0	52
85.0	33
90.0	19
95.0	9
100.0	3
105.0	1
110.0	0
115.0	0
120.0	0
125.0	0
130.0	0
135.0	0
140.0	0
145.0	0
150.0	0
155.0	0
160.0	0
165.0	0
170.0	0
175.0	0
180.0	0



**HUBBELL**  
Lighting

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



REPORT NUMBER: 16.02269  
ISSUE DATE: 08/15/16  
PREPARED FOR: PROGRESS

PAGE: 6 OF 9

ZONAL LUMEN SUMMARY

0- 5	10.
5- 10	30.
10- 15	49.
15- 20	66.
20- 25	80.
25- 30	91.
30- 35	99.
35- 40	103.
40- 45	103.
45- 50	100.
50- 55	94.
55- 60	84.
60- 65	73.
65- 70	60.
70- 75	47.
75- 80	34.
80- 85	23.
85- 90	14.
90- 95	7.
95-100	3.
100-105	1.
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.



**HUBBELL**  
Lighting

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



REPORT NUMBER: 16.02269  
ISSUE DATE: 08/15/16  
PREPARED FOR: PROGRESS

PAGE: 7 OF 9

5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	10
5- 10	30
10- 15	49
15- 20	66
20- 25	80
25- 30	91
30- 35	99
35- 40	103
40- 45	103
45- 50	100
50- 55	94
55- 60	84
60- 65	73
65- 70	60
70- 75	47
75- 80	34
80- 85	23
85- 90	14
90- 95	7
95-100	3
100-105	1
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	40
0- 20	155
0- 30	325
0- 40	527
0- 50	729
0- 60	907
0- 70	1040
0- 80	1121
0- 90	1158
0-100	1169
0-110	1170
0-120	1170
0-130	1170
0-140	1170
0-150	1170
0-160	1170
0-170	1170
0-180	1170



**HUBBELL**  
Lighting

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



REPORT NUMBER: 16.02269  
ISSUE DATE: 08/15/16

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		
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30		10	
0	119	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	101	101	101	99
1	108	103	99	95	95	105	101	97	93	96	93	90	90	92	90	87	88	86	84	82
2	98	90	83	77	77	96	88	82	76	84	79	74	74	81	76	72	78	74	71	68
3	90	79	71	64	64	87	77	70	64	74	68	62	62	71	66	61	69	64	60	58
4	82	70	61	55	55	80	69	61	54	66	59	53	53	64	57	52	61	56	52	49
5	76	63	54	47	47	73	62	53	47	59	52	46	46	57	51	46	55	50	45	43
6	70	57	48	41	41	68	56	47	41	54	46	41	41	52	45	40	50	44	40	38
7	65	51	43	36	36	63	50	42	36	49	41	36	36	47	41	36	46	40	35	33
8	60	47	38	33	33	59	46	38	32	45	37	32	32	43	37	32	42	36	32	30
9	56	43	35	29	29	55	42	35	29	41	34	29	29	40	34	29	39	33	29	27
10	53	40	32	27	27	52	39	32	27	38	31	26	26	37	31	26	36	30	26	24

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  
16.02269



**HUBBELL**  
Lighting

Date  
8/15/2016

### *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

### *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.*