

Project Number  
18.00253



**HUBBELL**  
Lighting

Date  
3/2/2018

LAB 5  
Sphere

*Test Sample Description*

*Catalog Number:* P500066-020-30  
*Description:* 1-Lt. LED Pendant w/ Glossy White Opal Refractor

*Photometry*  
*Test Method:* IES LM-41-14  
IES LM-79-08 §10  
*Preburn Time:* 0:00  
*Time To Stabilize:* 0:30  
*Total Operating Time:* 2:00

*Input Voltage (Volts):* 120.1  
*Input Current (Amps):* 0.080  
*Input Wattage (Watts):* 9.5  
*Ambient Temp (°C):* 26

*Sphere*  
*Test Method:* IES LM-16-93  
IES LM-79-08 §12.1  
*Preburn Time:* 2:00  
*Time To Stabilize:* 1:23  
*Total Operating Time:* 3:23

*Input Voltage (Volts):* 120.0  
*Input Current (Amps):* 0.080  
*Input Wattage (Watts):* 9.5  
*Ambient Temp (°C):* 24  
*PF @ 120V:* 0.991  
*THD @ 120V (%):* 12.2



**Hubbell Lighting, Inc.**

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

*Checked (sphere):* B. LEE  
*Checked (photometry):* R. WILLIAMS  
*Approved:* N. DeVOL

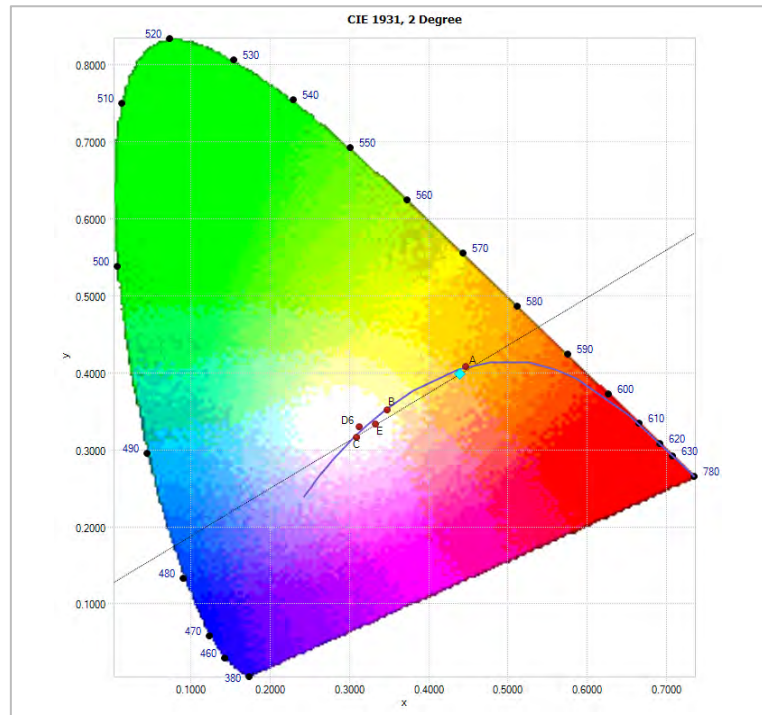




Lamp Cat#: 93070270-3330  
 Lamp Desc: 20 - Nichia 3000K LEDs  
 Driver Desc:

Efficacy: 67.6 LPW      S/P Ratio: 1.5 LM/LM

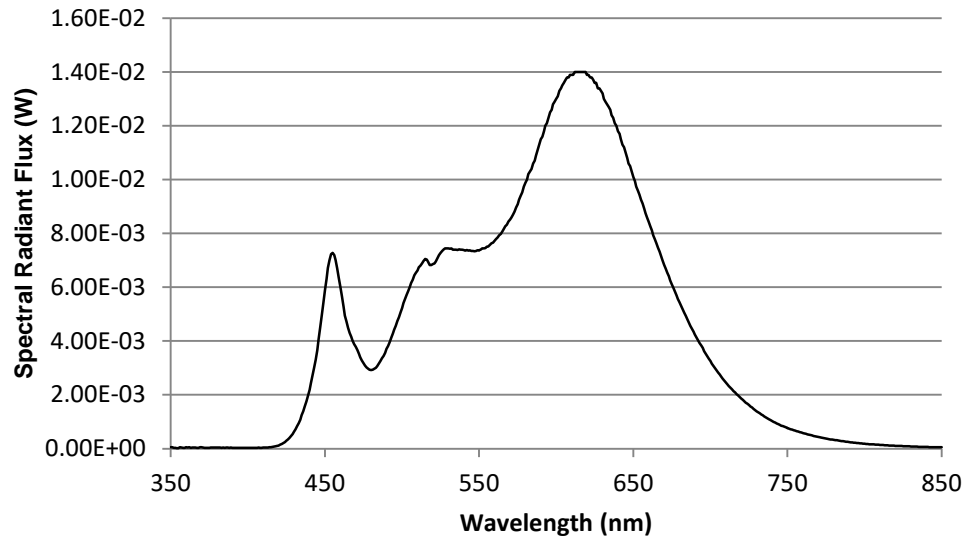
**Chromaticity Diagram**



**Spectral Results**

Name	Value	Unit
Φ	2.18	watts
Φ(v)	642	lumens
Φ(v')	934	lm'
Chrom x	0.4395	
Chrom y	0.3991	
Chrom u	0.2544	
Chrom v	0.3465	
Duv	0.0026	
Chrom u'	0.2544	
Chrom v'	0.5198	
CCT	2914	K
Purity	51.7	%
λ (dom)	584.0	nm
FWHM	146.4	nm
λ (peak)	614.6	nm
λ (center)	595.7	nm
λ (centroid)	590.2	nm
SDCM	Cool White	
RA	94	
Corr. Coef.	0.002319695	
Correlation	0.0054	
R1	98.1	
R2	98.3	
R3	95.7	
R4	98.7	
R5	99.0	
R6	92.4	
R7	89.3	
R8	80.3	
R9	58.5	
R10	96.9	
R11	94.4	
R12	86.4	
R13	99.1	
R14	98.4	

**Spectral Distribution of Radiant Flux**





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**ISSUE DATE:** 03/02/18

**PREPARED FOR:** PROGRESS

**CATALOG NUMBER:** P500066-020-30

**LUMINAIRE:** 1-Lt. LED Pendant

**LAMP CAT. NO.:** 93070270-3330

**LAMP:** 20- Nichia 3000K LEDs

**MOUNTING:** Ceiling

**REFRACTOR:** Glossy Opal

**NOTE:** DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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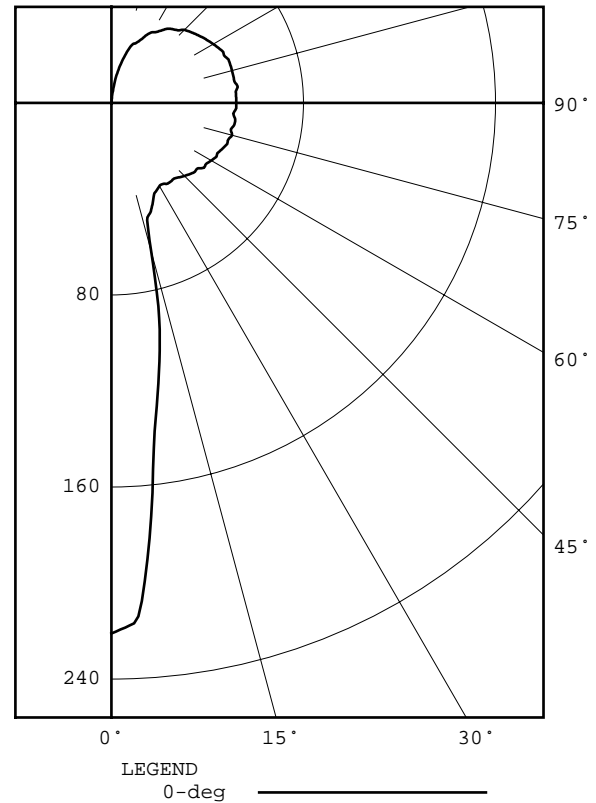
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DEG	CANDELA	LUMENS
0	221	
5	182	15
15	64	19
25	42	20
35	41	26
45	43	33
55	47	42
65	49	49
75	52	54
85	51	56
90	52	
95	52	57
105	52	55
115	51	50
125	47	42
135	43	33
145	37	23
155	29	14
165	19	6
175	2	0
180	0	

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	54	9.1
0- 40	80	13.4
0- 60	155	26.0
0- 90	314	52.8
90-120	162	27.3
90-130	204	34.4
90-150	261	43.8
90-180	281	47.2
0-180	595	100.0

EFFICACY = 62.6 lm/W  
CIE TYPE - GENERAL DIFFUSE





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CANDELA DISTRIBUTION

0.0	221
5.0	182
10.0	114
15.0	64
20.0	48
25.0	42
30.0	40
35.0	41
40.0	41
45.0	43
50.0	45
55.0	47
60.0	48
65.0	49
70.0	51
75.0	52
80.0	52
85.0	51
90.0	52
95.0	52
100.0	52
105.0	52
110.0	52
115.0	51
120.0	49
125.0	47
130.0	45
135.0	43
140.0	40
145.0	37
150.0	34
155.0	29
160.0	26
165.0	19
170.0	11
175.0	2
180.0	0



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		5
5- 10		10
10- 15		11
15- 20		9
20- 25		9
25- 30		10
30- 35		12
35- 40		14
40- 45		16
45- 50		18
50- 55		20
55- 60		22
60- 65		24
65- 70		25
70- 75		27
75- 80		28
80- 85		28
85- 90		28
90- 95		28
95-100		29
100-105		28
105-110		27
110-115		26
115-120		24
120-125		22
125-130		20
130-135		18
135-140		15
140-145		13
145-150		10
150-155		8
155-160		6
160-165		4
165-170		2
170-175		0
175-180		0

10-DEGREE ZONAL LUMEN SUMMARY		
0- 10		15
0- 20		34
0- 30		54
0- 40		80
0- 50		113
0- 60		155
0- 70		204
0- 80		258
0- 90		314
0-100		371
0-110		426
0-120		477
0-130		519
0-140		552
0-150		575
0-160		589
0-170		595
0-180		595



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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	108	108	108	108	108	100	100	100	100	100	85	85	85	71	71	71	59	59	59	53
1	94	88	82	77	77	86	81	76	71	71	68	64	60	56	53	50	45	43	41	35
2	84	74	66	60	60	77	68	61	55	55	57	52	47	47	43	39	37	34	31	27
3	76	64	55	48	48	69	59	51	45	45	49	43	38	40	36	32	32	28	25	21
4	69	56	47	40	40	63	52	44	37	37	43	37	32	36	30	26	28	24	21	17
5	63	50	41	34	34	58	46	38	32	32	39	32	27	32	27	22	25	21	18	15
6	58	45	36	29	29	53	41	33	27	27	35	28	23	29	23	20	23	19	16	13
7	54	40	32	26	26	49	37	29	24	24	32	25	21	26	21	17	21	17	14	11
8	50	37	28	23	23	46	34	26	21	21	29	23	18	24	19	15	19	15	13	10
9	47	34	26	20	20	43	31	24	19	19	27	21	16	22	17	14	18	14	11	9
10	44	31	23	18	18	40	29	22	17	17	25	19	15	21	16	13	17	13	10	8

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 TEST SAMPLE.



### *Goniophotometer Calibration*

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

Lamp Number: ITL78966-1000-38

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 25889.0 Lumens

Calibration Date: 09/08/2016

### *Test Equipment Used*

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL/HLI LAB 5 - Test Distance: 56.0'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27072V	10/25/2018
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	1912722	10/26/2018

### *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	Checked Daily
<i>Thermometer</i>	National Instruments / USB TC01	1912751	10/26/2018
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	10/25/2018
<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	N/A
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	N/A
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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