

Project Number
18.01383



HUBBELL
Lighting

Date
8/31/2018

Lab 1
Sphere

Test Sample Description

Catalog Number: P350134-143

Description: 12" Semi-Flush-Mount w/ Summer Linen and Etched Glass Refractors

Photometry

Test Method: IES LM-46-04
IES LM-79-08 §10

Preburn Time: 0:10

Time To Stabilize: 1:00

Total Operating Time: 2:00

Input Voltage (Volts): 119.9

Input Current (Amps): 0.154

Input Wattage (Watts): 18.2

Ambient Temp (°C): 26

Sphere

Test Method: IES LM-16-93
IES LM-79-08 §12.1

Preburn Time: 4:00

Time To Stabilize: 0:56

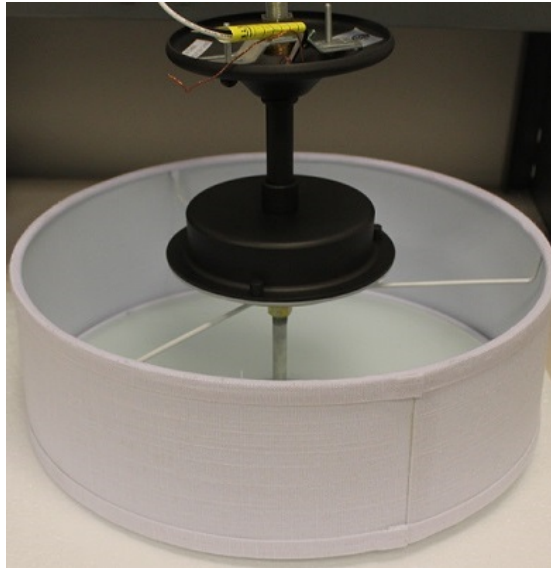
Total Operating Time: 4:56

Input Voltage (Volts): 120.0

Input Current (Amps): 0.151

Input Wattage (Watts): 17.8

Ambient Temp (°C): 24



Hubbell Lighting, Inc.

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

Checked (sphere): B. LEE
Checked (photometry): D. ROBBINS
Approved: N. DeVOL



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


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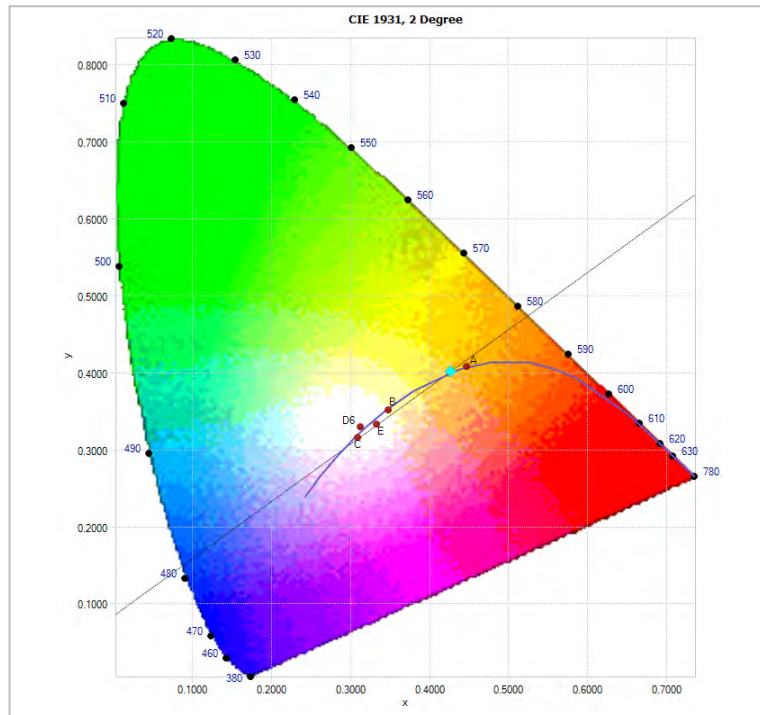
Lamp Cat#: 93047261-5130

Lamp Desc: 40 - Nichia 3000K LEDs

Efficacy: 55.6 LPW

S/P Ratio: 1.6 LM/LM

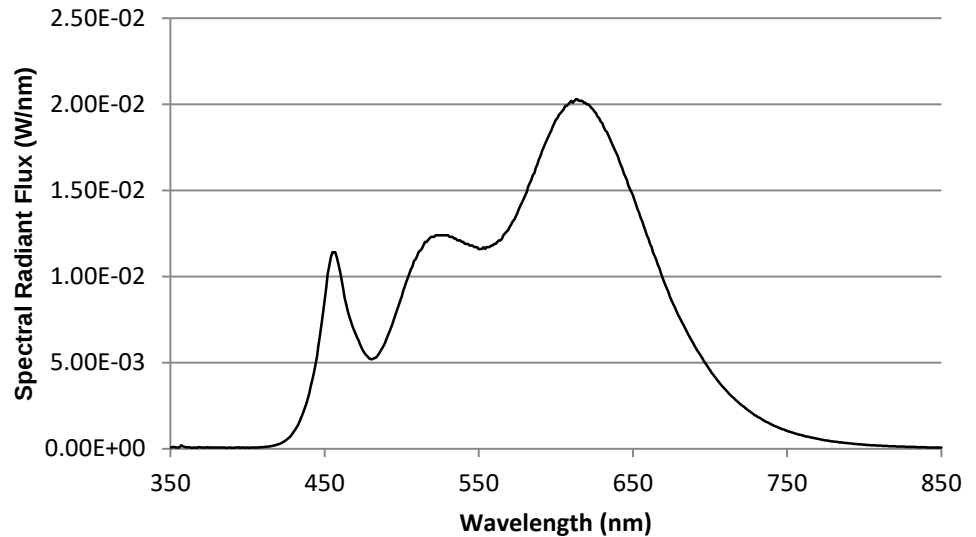
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	3.30	watts
$\Phi(v)$	990	lumens
$\Phi(v')$	1546	lm'
Chrom x	0.4262	
Chrom y	0.4022	
Chrom u	0.2445	
Chrom v	0.346	
Duv	0.0006	
Chrom u'	0.2445	
Chrom v'	0.519	
CCT	3171	K
Purity	48.7	%
λ (dom)	581.8	nm
FWHM	163.6	nm
λ (peak)	614	nm
λ (center)	586.6	nm
λ (centroid)	585.6	nm
SDCM	Cool White	
RA	95	
Corr. Coef.	0.000876404	
Correlation	0.0054	
R1	98.8	
R2	98.7	
R3	96.9	
R4	98.5	
R5	98.4	
R6	93.5	
R7	91.4	
R8	83.6	
R9	63.5	
R10	97.2	
R11	93.0	
R12	84.7	
R13	98.7	
R14	98.7	

Spectral Distribution of Radiant Flux





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LUMINAIRE: 13" Semi-Flush-Mount w/ Summer Linen and Etched Glass Refractors

LAMP CAT. NO.: 93047261-5130

LAMP: 40- Nichia 3000K LEDs

BALLAST: Single AC LED Module

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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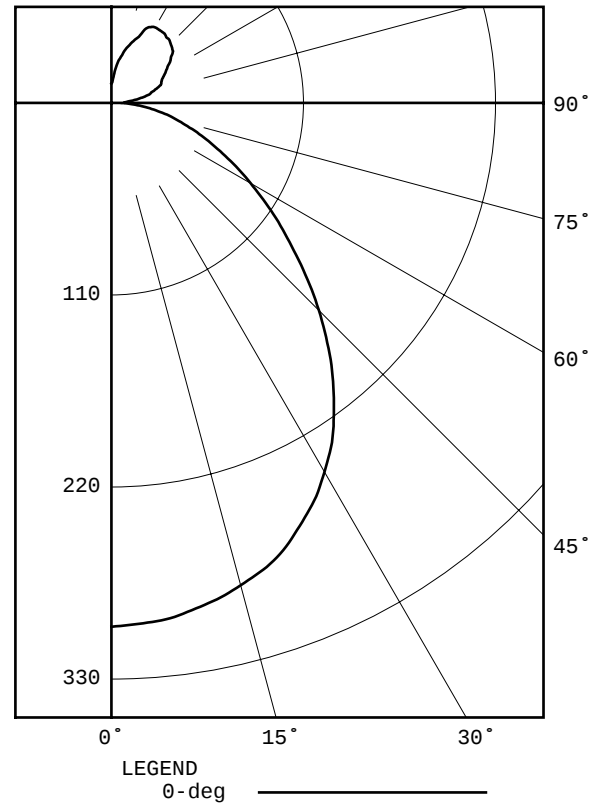
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DEG	CANDELA	LUMENS
0	300	
5	298	28
15	286	81
25	262	121
35	222	138
45	168	130
55	115	103
65	72	72
75	40	43
85	15	17
90	7	
95	10	12
105	24	26
115	32	32
125	41	36
135	48	37
145	50	31
155	47	21
165	32	9
175	16	2
180	11	

ZONAL ZONE	LUMEN	SUMMARY LUMENS	%FIXT
0- 30		230	24.5
0- 40		368	39.2
0- 60		601	63.9
0- 90		732	78.0
90-120		70	7.4
90-130		106	11.3
90-150		175	18.6
90-180		207	22.0
0-180		939	100.0

EFFICACY = 51.6 lm/W
CIE TYPE - SEMI-DIRECT
SPACING CRITERION: 1.21
PLANE : 0-DEG 90-DEG
SHIELDING ANGLES : 90 90





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LUMINOUS DIAMETER: 12.500
HEIGHT OF SIDE : 4.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	2132.
55	1601.
65	1148.
75	774.
85	384.



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CANDELA DISTRIBUTION

0.0	300
5.0	298
10.0	293
15.0	286
20.0	277
25.0	262
30.0	244
35.0	222
40.0	196
45.0	168
50.0	140
55.0	115
60.0	92
65.0	72
70.0	55
75.0	40
80.0	27
85.0	15
90.0	7
95.0	10
100.0	18
105.0	24
110.0	30
115.0	32
120.0	36
125.0	41
130.0	46
135.0	48
140.0	49
145.0	50
150.0	50
155.0	47
160.0	38
165.0	32
170.0	25
175.0	16
180.0	11



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		7
5- 10		21
10- 15		34
15- 20		46
20- 25		57
25- 30		64
30- 35		69
35- 40		70
40- 45		67
45- 50		62
50- 55		55
55- 60		48
60- 65		40
65- 70		32
70- 75		25
75- 80		18
80- 85		11
85- 90		6
90- 95		5
95-100		8
100-105		12
105-110		14
110-115		16
115-120		17
120-125		18
125-130		19
130-135		19
135-140		18
140-145		17
145-150		15
150-155		12
155-160		9
160-165		6
165-170		3
170-175		2
175-180		0

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		28
0- 20		109
0- 30		230
0- 40		368
0- 50		498
0- 60		601
0- 70		672
0- 80		715
0- 90		732
0-100		744
0-110		770
0-120		802
0-130		839
0-140		876
0-150		907
0-160		928
0-170		937
0-180		939



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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	114	114	114	114	109	109	109	109	99	99	99	90	90	90	82	82	82	78
1	104	100	96	92	99	95	92	88	87	84	82	79	77	75	73	71	69	66
2	95	87	81	76	91	84	78	73	77	72	68	70	67	63	64	61	59	56
3	87	77	70	64	83	74	67	62	68	62	58	62	58	54	57	54	51	48
4	80	69	61	54	76	66	59	53	61	55	50	56	51	47	51	47	44	41
5	74	62	53	47	70	59	52	46	55	48	43	51	45	41	47	42	39	36
6	68	56	47	41	65	54	46	40	50	43	38	46	40	36	42	38	34	32
7	63	51	42	37	60	49	41	36	45	39	34	42	36	32	39	34	31	28
8	59	46	38	33	56	45	37	32	41	35	30	39	33	29	36	31	28	25
9	55	42	35	29	52	41	34	29	38	32	27	36	30	26	33	28	25	23
10	52	39	32	27	49	38	31	26	35	29	25	33	28	24	31	26	23	21

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.

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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: 07 /10/2017

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL/HLI LAB 1 - Test Distance: 31.74'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27071V	10/25/2018
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	176F4E3	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>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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