

Project Number
18.01384



HUBBELL
Lighting

Date
8/31/2018

Lab 1
Sphere

Test Sample Description

Catalog Number: P350135-143

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

Photometry

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

Preburn Time: 0:05

Time To Stabilize: 1:05

Total Operating Time: 1:45

Input Voltage (Volts): 120.1

Input Current (Amps): 0.152

Input Wattage (Watts): 17.9

Ambient Temp (°C): 26

Sphere

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

Preburn Time: 8:00

Time To Stabilize: 1:08

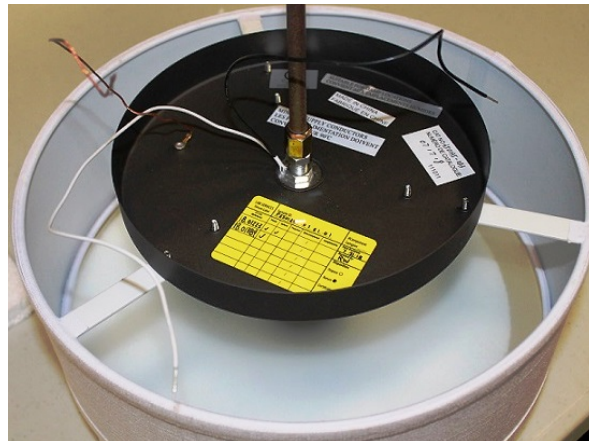
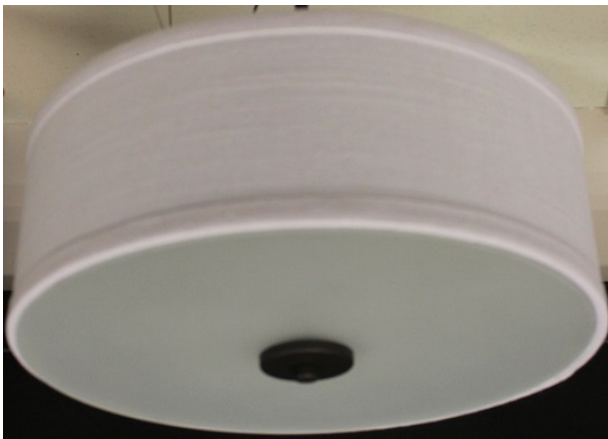
Total Operating Time: 9:08

Input Voltage (Volts): 120.0

Input Current (Amps): 0.149

Input Wattage (Watts): 17.6

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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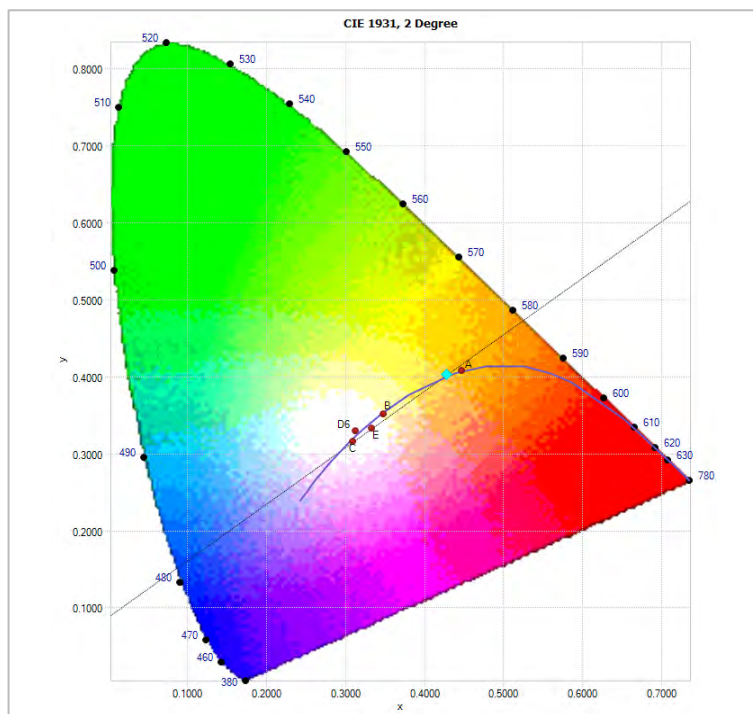
Lamp Cat#: 93047261-5130

Lamp Desc: 40 - Nichia 3000K LEDs

Efficacy: 55.8 LPW

S/P Ratio: 1.5 LM/LM

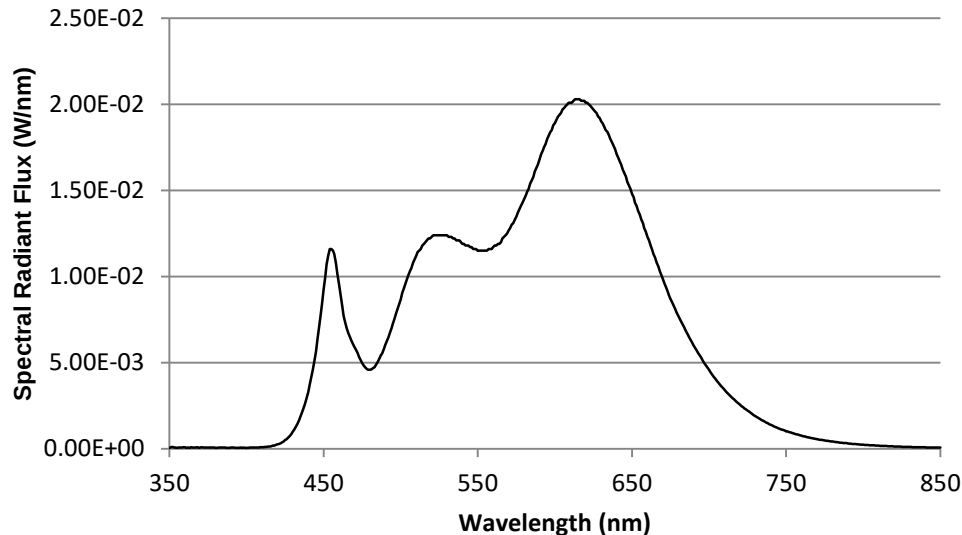
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	3.28	watts
$\Phi(v)$	982	lumens
$\Phi(v')$	1515	lm'
Chrom x	0.4284	
Chrom y	0.4031	
Chrom u	0.2455	
Chrom v	0.3465	
Duv	0.0005	
Chrom u'	0.2455	
Chrom v'	0.5197	
CCT	3139	K
Purity	49.6	%
λ (dom)	581.9	nm
FWHM	163.5	nm
λ (peak)	614.5	nm
λ (center)	586.9	nm
λ (centroid)	586.4	nm
SDCM	Cool White	
RA	95	
Corr. Coef.	0.000882379	
Correlation	0.0054	
R1	98.9	
R2	99.1	
R3	98.0	
R4	98.0	
R5	98.7	
R6	93.9	
R7	92.4	
R8	84.7	
R9	65.2	
R10	97.9	
R11	91.3	
R12	85.5	
R13	98.6	
R14	98.9	

Spectral Distribution of Radiant Flux





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REPORT NUMBER: 18.01384

PAGE: 3 OF 9

ISSUE DATE: 08/31/18

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CATALOG NUMBER: P350135-143

LUMINAIRE: 13" 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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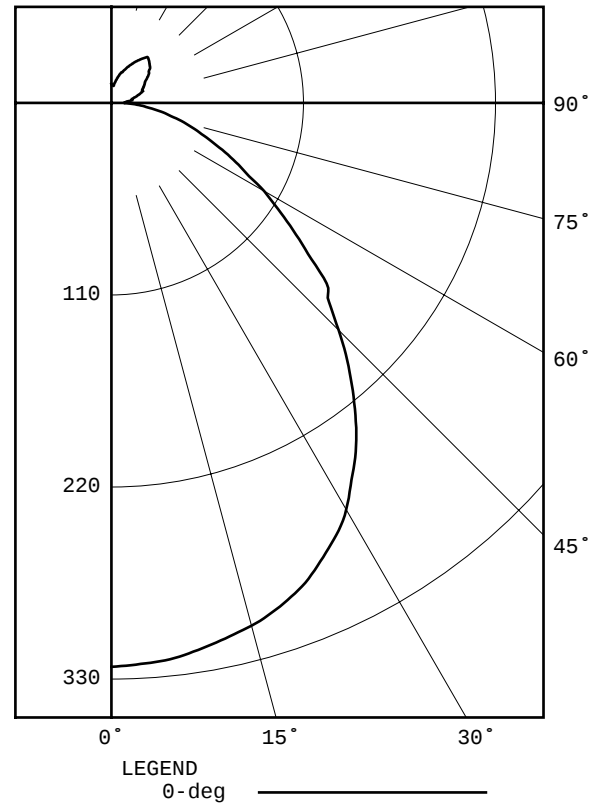
REPORT NUMBER: 18.01384
ISSUE DATE: 08/31/18
PREPARED FOR: PROGRESS
CATALOG NUMBER: P350135-143

PAGE: 4 OF 9

DEG	CANDELA	LUMENS
0	323	
5	321	30
15	310	87
25	287	132
35	244	152
45	184	143
55	127	115
65	77	77
75	43	45
85	17	19
90	7	
95	9	10
105	15	16
115	20	20
125	25	22
135	31	24
145	31	19
155	23	11
165	16	5
175	10	1
180	11	

ZONAL ZONE	LUMEN	SUMMARY LUMENS	%FIXT
0- 30		250	26.9
0- 40		402	43.3
0- 60		660	71.0
0- 90		800	86.2
90-120		46	5.0
90-130		69	7.4
90-150		112	12.1
90-180		128	13.8
0-180		929	100.0

EFFICACY = 51.9 lm/W
CIE TYPE - SEMI-DIRECT
SPACING CRITERION: 1.23
PLANE : 0-DEG 90-DEG
SHIELDING ANGLES : 90 90





®

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CATALOG NUMBER: P350135-143

PAGE: 5 OF 9

LUMINOUS DIAMETER: 12.500
HEIGHT OF SIDE : 4.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	2335.
55	1768.
65	1228.
75	833.
85	435.



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REPORT NUMBER: 18.01384
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PREPARED FOR: PROGRESS
CATALOG NUMBER: P350135-143

PAGE: 6 OF 9

CANDELA DISTRIBUTION

0.0	323
5.0	321
10.0	316
15.0	310
20.0	301
25.0	287
30.0	269
35.0	244
40.0	215
45.0	184
50.0	161
55.0	127
60.0	101
65.0	77
70.0	58
75.0	43
80.0	29
85.0	17
90.0	7
95.0	9
100.0	12
105.0	15
110.0	19
115.0	20
120.0	22
125.0	25
130.0	28
135.0	31
140.0	33
145.0	31
150.0	27
155.0	23
160.0	19
165.0	16
170.0	12
175.0	10
180.0	11



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REPORT NUMBER: 18.01384
ISSUE DATE: 08/31/18
PREPARED FOR: PROGRESS
CATALOG NUMBER: P350135-143

PAGE: 7 OF 9

5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		8
5- 10		23
10- 15		37
15- 20		50
20- 25		62
25- 30		70
30- 35		75
35- 40		77
40- 45		74
45- 50		69
50- 55		62
55- 60		52
60- 65		43
65- 70		34
70- 75		26
75- 80		19
80- 85		12
85- 90		6
90- 95		4
95-100		6
100-105		7
105-110		9
110-115		10
115-120		10
120-125		11
125-130		12
130-135		12
135-140		12
140-145		11
145-150		9
150-155		6
155-160		4
160-165		3
165-170		2
170-175		1
175-180		0

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		30
0- 20		118
0- 30		250
0- 40		402
0- 50		545
0- 60		660
0- 70		736
0- 80		782
0- 90		800
0-100		811
0-110		827
0-120		847
0-130		869
0-140		893
0-150		912
0-160		923
0-170		928
0-180		929



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CATALOG NUMBER: P350135-143

PAGE: 8 OF 9

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
0	116	116	116	116	111	111	111	111	103	103	103	96	96	96	89	89	89	86
1	106	102	97	94	102	98	94	91	91	88	86	85	83	81	79	78	76	73
2	97	89	83	77	93	86	80	75	80	76	72	75	71	68	70	67	64	62
3	89	79	71	65	85	76	69	64	71	66	61	67	62	58	63	59	55	53
4	82	70	62	56	78	68	60	55	64	57	52	60	55	50	56	52	48	46
5	75	63	55	48	72	61	53	47	57	51	46	54	48	44	51	46	42	40
6	70	57	48	42	67	55	47	42	52	45	40	49	43	39	46	41	37	35
7	65	52	43	38	62	50	42	37	48	41	36	45	39	35	43	37	33	31
8	60	47	39	34	58	46	38	33	44	37	32	41	35	31	39	34	30	28
9	56	43	36	30	54	42	35	30	40	34	29	38	32	28	36	31	27	25
10	53	40	33	27	51	39	32	27	37	31	26	35	30	26	34	29	25	23

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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