

Project Number
17.03021



HUBBELL
Lighting

Date
11/28/2017

Lab#6
Sphere

Test Sample Description

Catalog Number: P350113-108-30
Description: LED Flush Mount

Photometry

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

Preburn Time: 0:40
Time To Stabilize: 2:00
Total Operating Time: 4:10

Input Voltage (Volts): 120.1
Input Current (Amps): 0.149
Input Wattage (Watts): 17.6
Ambient Temp (°C): 24

Sphere

IES LM-16-93
Test Method: IES LM-79-08 § 9.1 & 12.1

Preburn Time: 2:00
Time To Stabilize: 0:55
Total Operating Time: 2:55

Input Voltage (Volts): 120.0
Input Current (Amps): 0.147
Input Wattage (Watts): 17.3
Ambient Temp (°C): 24.0
PF @ 120V: 0.975
THD @ 120V (%): 16.8



Hubbell Lighting, Inc.

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Greenville, SC 29607
www.hubbellighting.com

Checked (sphere): B.LEE
Checked (photometry): M.ELLMANN
Approved: P. McCARTHY

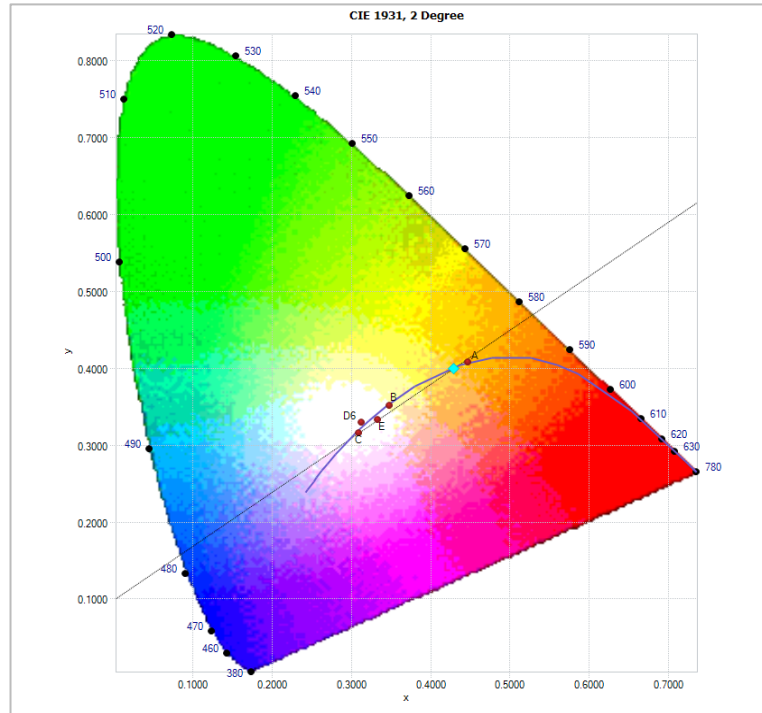




Lamp Cat#: 93047261-5230
Lamp Desc: 40 - NA 3000K LEDs

Efficacy: 53.9 LPW S/P Ratio: 1.5 LM/LM

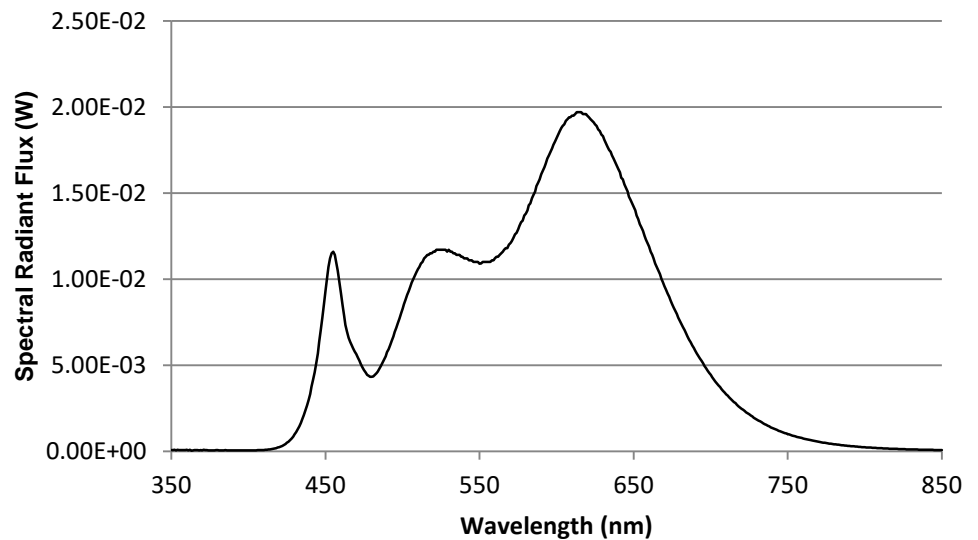
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	3.15	watts
$\Phi(v)$	937	lumens
$\Phi(v')$	1442	lm'
Chrom x	0.4286	
Chrom y	0.4003	
Chrom u	0.2468	
Chrom v	0.3458	
Duv	0.0008	
Chrom u'	0.2468	
Chrom v'	0.5186	
CCT	3113	K
Purity	48.8	%
λ (dom)	582.5	nm
FWHM	162.6	nm
λ (peak)	614.4	nm
λ (center)	587.6	nm
λ (centroid)	586.7	nm
SDCM	Cool White	
RA	95	
Corr. Coef.	0.000343951	
Correlation	0.0054	
R1	98.7	
R2	98.6	
R3	97.5	
R4	97.9	
R5	98.5	
R6	93.1	
R7	91.9	
R8	84.4	
R9	65.1	
R10	97.0	
R11	91.0	
R12	85.9	
R13	98.2	
R14	98.9	

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.



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PREPARED FOR: PROGRESS

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LUMINAIRE: LED Flush Mount

LAMP: 40 - Nichia 3000K LEDs

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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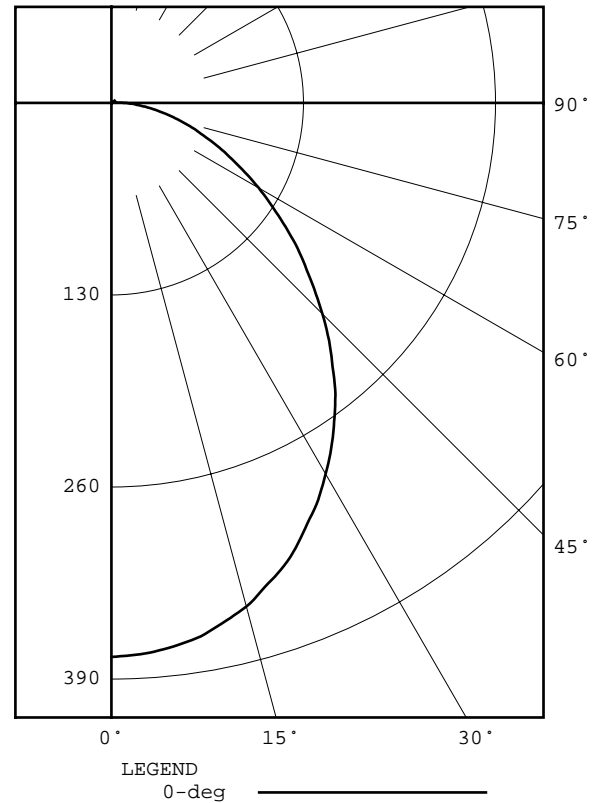
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DEG	CANDELA	LUMENS
0	375	
5	372	35
15	353	99
25	314	145
35	263	164
45	202	156
55	142	127
65	90	90
75	50	53
85	19	22
90	9	
95	3	4
105	3	3
115	3	3
125	2	2
135	1	1
145	1	1
155	0	0
165	0	0
175	0	0
180	0	

ZONAL ZONE	LUMEN LUMENS	SUMMARY LUMENS	%FIXT
0- 30		279	30.9
0- 40		444	49.0
0- 60		727	80.3
0- 90		891	98.4
90-120		10	1.1
90-130		12	1.4
90-150		14	1.6
90-180		14	1.6
0-180		905	100.0

EFFICACY = 51.4 lm/W
CIE TYPE - DIRECT
SPACING CRITERION: 1.16





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LUMINOUS DIAMETER: 9.750
HEIGHT OF SIDE : 0.750

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	5402.
55	4509.
65	3654.
75	2937.
85	2135.



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CANDELA DISTRIBUTION

0.0	375
5.0	372
10.0	365
15.0	353
20.0	336
25.0	314
30.0	290
35.0	263
40.0	233
45.0	202
50.0	171
55.0	142
60.0	115
65.0	90
70.0	68
75.0	50
80.0	33
85.0	19
90.0	9
95.0	3
100.0	2
105.0	3
110.0	3
115.0	3
120.0	3
125.0	2
130.0	2
135.0	1
140.0	1
145.0	1
150.0	1
155.0	0
160.0	0
165.0	0
170.0	0
175.0	0
180.0	0



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		9
5- 10		26
10- 15		43
15- 20		57
20- 25		68
25- 30		76
30- 35		81
35- 40		83
40- 45		81
45- 50		75
50- 55		68
55- 60		59
60- 65		50
65- 70		40
70- 75		31
75- 80		22
80- 85		14
85- 90		8
90- 95		3
95-100		1
100-105		1
105-110		2
110-115		2
115-120		1
120-125		1
125-130		1
130-135		1
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		35
0- 20		135
0- 30		279
0- 40		444
0- 50		599
0- 60		727
0- 70		816
0- 80		869
0- 90		891
0-100		895
0-110		898
0-120		901
0-130		903
0-140		904
0-150		905
0-160		905
0-170		905
0-180		905



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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	119	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101	98
1	109	104	100	96	96	106	102	98	94	97	94	91	93	90	88	89	87	85	83
2	99	91	85	79	79	97	89	83	78	86	81	76	82	78	74	79	75	72	70
3	91	81	73	67	67	88	79	72	66	76	70	65	73	68	63	70	66	62	60
4	84	72	64	57	57	81	71	63	57	68	61	56	66	60	55	63	58	54	52
5	77	65	56	50	50	75	64	55	49	61	54	49	59	53	48	57	52	47	45
6	72	59	50	44	44	70	58	49	43	56	48	43	54	47	42	52	46	42	40
7	66	53	45	39	39	65	52	44	39	51	44	38	49	43	38	48	42	38	36
8	62	49	41	35	35	60	48	40	35	47	40	34	45	39	34	44	38	34	32
9	58	45	37	32	32	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	29	53	41	34	29	40	33	28	39	33	28	38	32	28	26

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: 09/02/16

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	10/25/2018
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	1912745	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	Calibration 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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