

Project Number
17.00525



Date
2/17/2017

Lab 6
Sphere

Test Sample Description

Catalog Number: P3632-0930K9
Description: 1-Lt. Flush Mount w/HAL AC LED Module

Photometry

Test Method: IES LM-79-08 § 10
Preburn Time: 21:00
Time To Stabilize: 2:30
Total Operating Time: 23:55

Input Voltage (Volts): 120.1
Input Current (Amps): 0.264
Input Wattage (Watts): 29.5
Ambient Temp (°C): 25.1

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 1:00
Time To Stabilize: 1:17
Total Operating Time: 2:17

Input Voltage (Volts): 120.0
Input Current (Amps): 0.262
Input Wattage (Watts): 29.1
Ambient Temp (°C): 24.0
PF @ 120V: 0.93
THD @ 120V (%): 40.5



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

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

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Lamp Cat#: 93058664-3130

Lamp Desc: 40 - Nichia 3000K LEDs

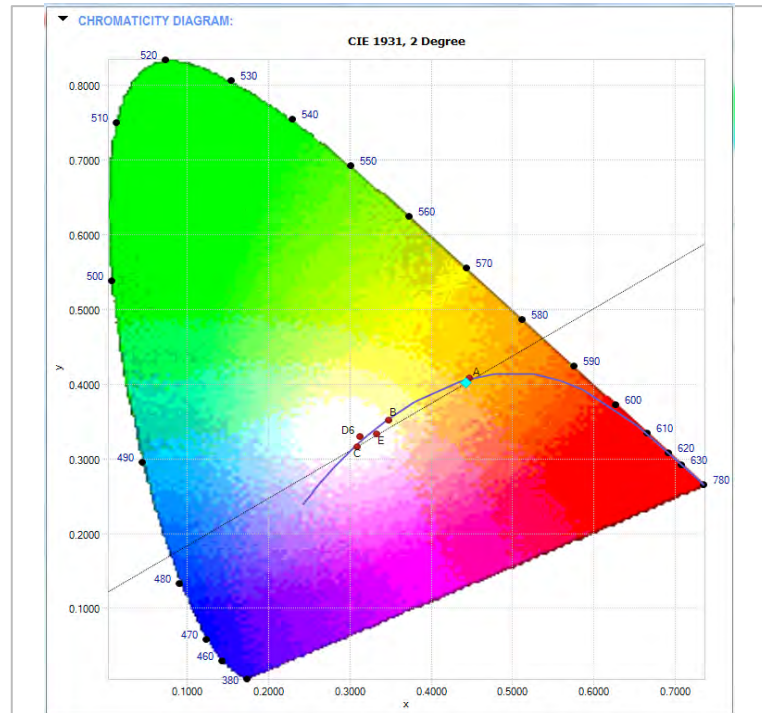
Driver Desc: n/a

Efficacy: 30.1 LPW

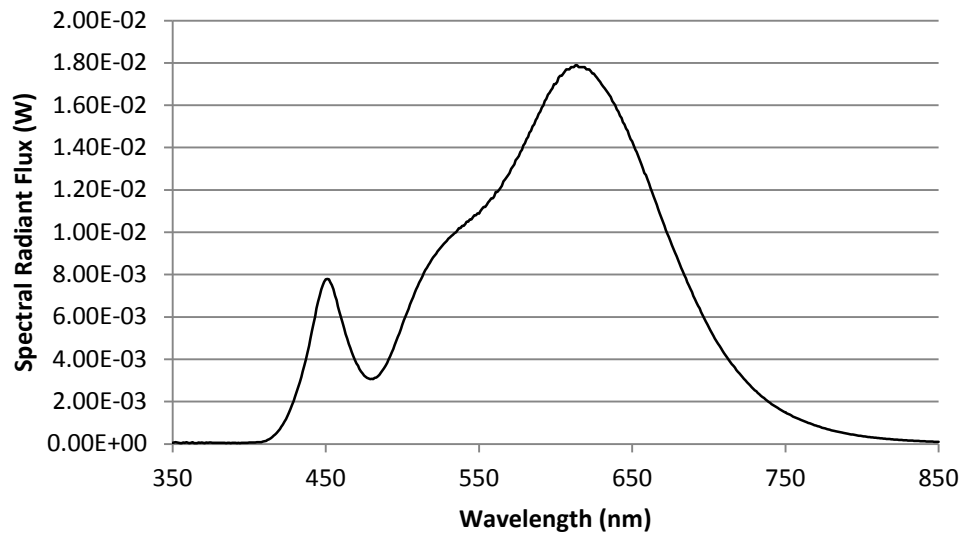
S/P Ratio: 1.3 LM/LM

Spectral Results

Name	Value	Unit
Φ	3.02	watts
$\Phi(v)$	875	lumens
$\Phi(v')$	1172	lm'
Chrom x	0.4422	
Chrom y	0.4024	
Chrom u	0.2547	
Chrom v	0.3477	
Duv	0.0017	
Chrom u'	0.2547	
Chrom v'	0.5215	
CCT	2897	K
Purity	53.5	%
λ (dom)	583.7	nm
FWHM	157	nm
λ (peak)	613.5	nm
λ (center)	600.0	nm
λ (centroid)	595.0	nm
SDCM	Cool White	
RA	90	
Corr. Coef.	0.001360946	
Correlation	0.0054	
R1	90.4	
R2	94.3	
R3	96.7	
R4	90.7	
R5	90.1	
R6	93.2	
R7	89.9	
R8	76.7	
R9	47.4	
R10	86.0	
R11	91.6	
R12	81.2	
R13	91.5	
R14	97.6	



Spectral Distribution of Radiant Flux





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PREPARED FOR: PROGRESS

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LUMINAIRE: 1-Lt. Flush Mount w/HAL AC LED Module

LAMP CAT. NO.: 93058664-3130

LAMP: 40 - Nichia 3000K LEDs

REFRACTOR: Acrylic

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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DEG	CANDELA	LUMENS
0	303	
5	301	29
15	291	82
25	272	125
35	243	152
45	207	159
55	163	146
65	113	112
75	59	63
85	11	14
90	0	

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	236	26.8
0- 40	389	44.1
0- 60	694	78.6
0- 90	882	100.0
90-180	0	0.0
0-180	882	100.0

EFFICACY = 29.5 lm/W

CIE TYPE - DIRECT

LUMINAIRE SPACING CRITERION = 1.27

LUMINOUS DIAMETER: 11.500

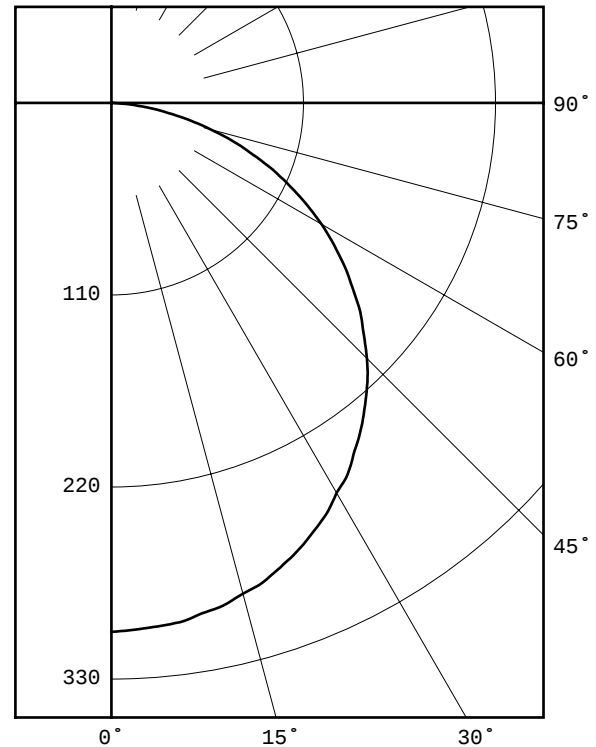
HEIGHT OF SIDE : 7.000

LUMINANCE DATA IN CANDELA/SQ M

ANGLE AVERAGE

IN DEG

45	2461.
55	2013.
65	1499.
75	874.
85	191.





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CANDELA DISTRIBUTION

0.0	303
2.5	302
5.0	301
7.5	300
10.0	297
12.5	295
15.0	291
17.5	288
20.0	283
22.5	278
25.0	272
27.5	266
30.0	258
32.5	252
35.0	243
37.5	235
40.0	226
42.5	217
45.0	207
47.5	196
50.0	186
52.5	174
55.0	163
57.5	151
60.0	139
62.5	126
65.0	113
67.5	100
70.0	86
72.5	73
75.0	59
77.5	46
80.0	33
82.5	22
85.0	11
87.5	2
90.0	0



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		7
5- 10		21
10- 15		35
15- 20		47
20- 25		58
25- 30		67
30- 35		74
35- 40		78
40- 45		80
45- 50		79
50- 55		76
55- 60		70
60- 65		61
65- 70		50
70- 75		38
75- 80		25
80- 85		12
85- 90		2

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		29
10- 20		82
20- 30		125
30- 40		152
40- 50		159
50- 60		146
60- 70		112
70- 80		63
80- 90		14



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	84
2	99	90	84	78	96	89	82	77	85	80	75	82	77	73	79	75	72	69
3	90	79	71	64	87	78	70	64	75	68	63	72	66	62	69	65	61	58
4	82	70	61	54	80	69	60	54	66	59	53	64	58	53	62	56	52	50
5	76	63	53	47	73	61	53	46	59	52	46	57	51	45	55	50	45	43
6	70	56	47	41	68	55	47	41	53	46	40	52	45	40	50	44	39	37
7	65	51	42	36	63	50	42	36	49	41	35	47	40	35	46	40	35	33
8	60	46	38	32	58	46	38	32	44	37	32	43	36	31	42	36	31	29
9	56	43	34	29	55	42	34	29	41	34	28	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	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 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: 09/02/2016

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL / HLI LAB 6 - Test Distance: 31.3'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27076V	11/2/2017
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	1912745	11/2/2017

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	11/2/2017
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	11/1/2017
<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	031159372	10/31/2017
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	12/1/2017
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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