

Project Number
19.00228



HUBBELL
Lighting

Date
2/14/2019

Photometric Test Report

Lab 1
Sphere

Test Sample Description

Catalog Number: P5072-2030K9

Description: 9" Avant AC LED Mini-Pendant w/ Etched White Refractor

Photometry

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

Preburn Time: 0:50

Time To Stabilize: 0:26

Total Operating Time: 2:44

Input Voltage (Volts): 120.2

Input Current (Amps): 0.071

Input Wattage (Watts): 8.0

Ambient Temp (°C): 25.7

Sphere

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

Preburn Time: 0:10

Time To Stabilize: 1:32

Total Operating Time: 1:42

Input Voltage (Volts): 120.0

Input Current (Amps): 0.071

Input Wattage (Watts): 7.9

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: P. McCARTHY

NVLAP[®]
TESTING
NVLAP LAB CODE: 201003-0

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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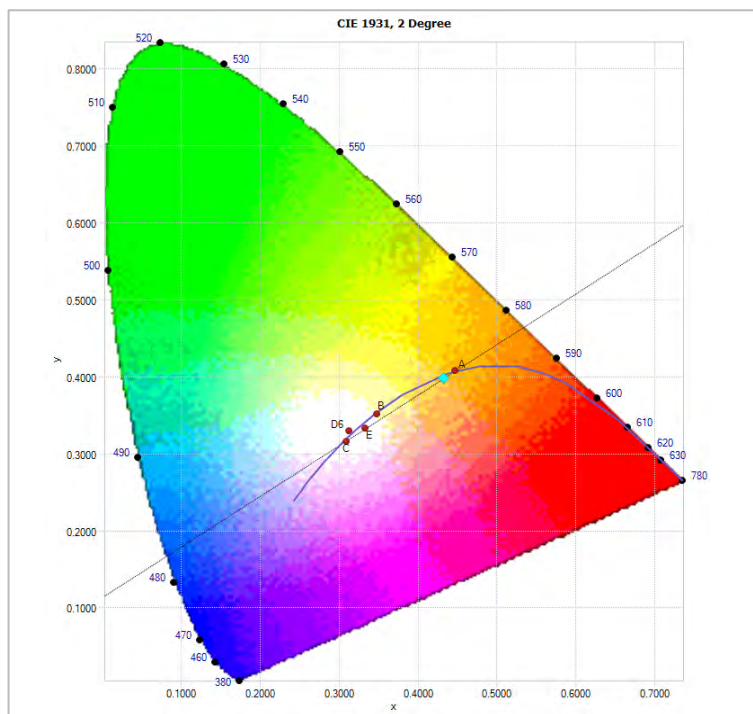
Lamp Cat#: 93049180-3

Lamp Desc: 1- HAL AC LED Module w/ 20- Nicha 3000K LEDs

Efficacy: 67.6 LPW

S/P Ratio: 1.4 LM/LM

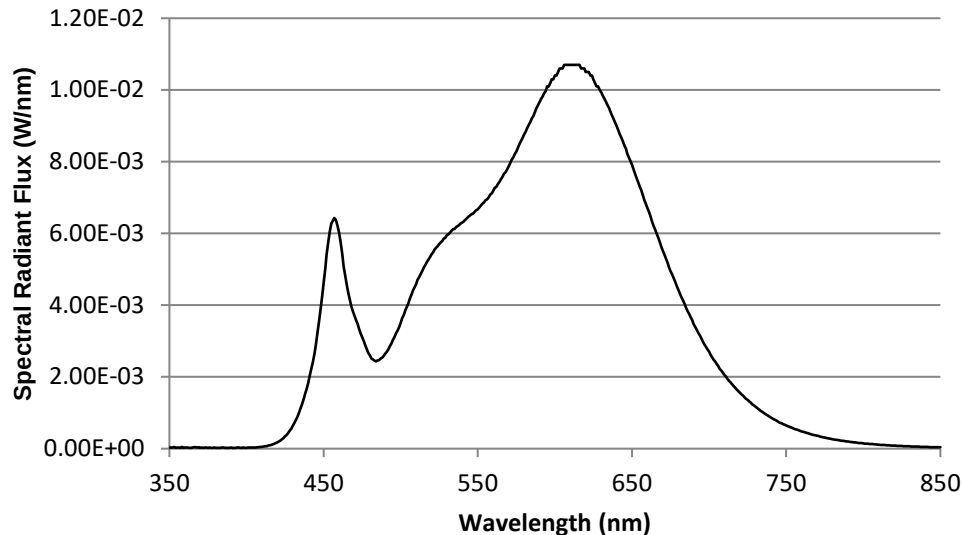
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	1.78	watts
$\Phi(v)$	534	lumens
$\Phi(v')$	761	lm'
Chrom x	0.4325	
Chrom y	0.3984	
Chrom u	0.2501	
Chrom v	0.3456	
Duv	0.0017	
Chrom u'	0.2501	
Chrom v'	0.5185	
CCT	3028	K
Purity	49.4	%
λ (dom)	583.3	nm
FWHM	151.9	nm
λ (peak)	612.7	nm
λ (center)	595.4	nm
λ (centroid)	588.7	nm
SDCM	Cool White	
RA	90	
Corr. Coef.	0.001668379	
Correlation	0.0054	
R1	90.4	
R2	96.2	
R3	97.5	
R4	88.9	
R5	90.1	
R6	94.7	
R7	87.9	
R8	74.1	
R9	43.0	
R10	89.8	
R11	89.6	
R12	77.0	
R13	92.3	
R14	99.4	

Spectral Distribution of Radiant Flux





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PREPARED FOR: PROGRESS

CATALOG NUMBER: P5072-2030K9

LUMINAIRE: 9" Avant AC LED Mini-Pendant w/ Etched White Refractor

LAMP CAT. NO.: 93049180-3

LAMP: 1- HAL AC LED Module w/ 20- Nicha 3000K LEDs

MOUNTING: Pendant

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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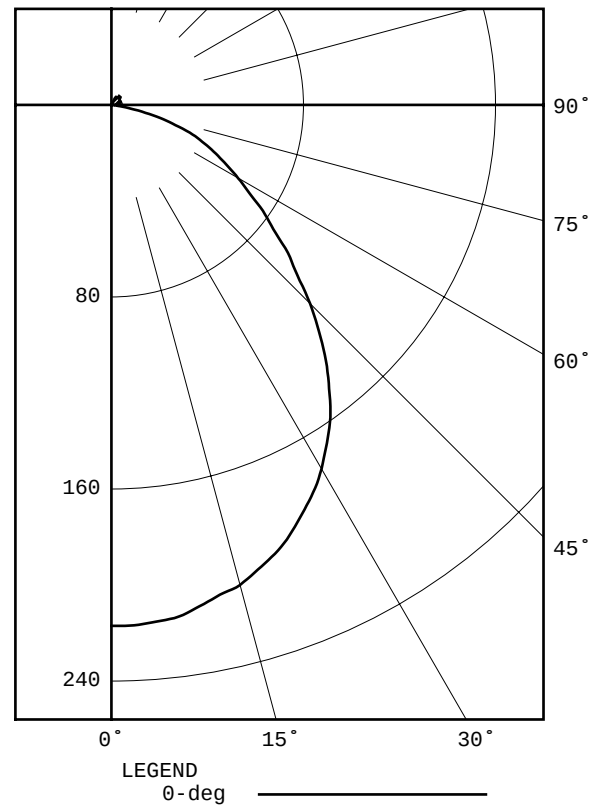
DEG	CANDELA	LUMENS
0	217	
5	216	21
15	207	58
25	188	87
35	159	99
45	117	90
55	77	69
65	48	48
75	21	22
85	2	2
90	2	
95	2	3
105	4	4
115	4	4
125	4	4
135	5	4
145	4	2
155	0	1
165	0	0
175	0	0
180	0	

ZONAL ZONE	LUMEN	SUMMARY LUMENS	%FIXT
0- 30		165	32.1
0- 40		264	51.2
0- 60		423	82.1
0- 90		495	96.0
90-120		10	2.0
90-130		14	2.7
90-150		20	3.9
90-180		21	4.0
0-180		516	100.0

EFFICACY = 64.8 lm/W

CIE TYPE - DIRECT

SPACING CRITERION: 1.20





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LUMINOUS DIAMETER: 9.000
HEIGHT OF SIDE : 1.250

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	3426.
55	2611.
65	2006.
75	1191.
85	185.



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CANDELA DISTRIBUTION

0.0	217
5.0	216
10.0	212
15.0	207
20.0	199
25.0	188
30.0	175
35.0	159
40.0	139
45.0	117
50.0	96
55.0	77
60.0	61
65.0	48
70.0	36
75.0	21
80.0	6
85.0	2
90.0	2
95.0	2
100.0	3
105.0	4
110.0	4
115.0	4
120.0	4
125.0	4
130.0	5
135.0	5
140.0	4
145.0	4
150.0	4
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		5
5- 10		15
10- 15		25
15- 20		33
20- 25		41
25- 30		46
30- 35		49
35- 40		50
40- 45		47
45- 50		43
50- 55		37
55- 60		32
60- 65		26
65- 70		21
70- 75		15
75- 80		7
80- 85		2
85- 90		1
90- 95		1
95-100		1
100-105		2
105-110		2
110-115		2
115-120		2
120-125		2
125-130		2
130-135		2
135-140		2
140-145		1
145-150		1
150-155		1
155-160		0
160-165		0
165-170		0
170-175		0
175-180		0

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		21
0- 20		79
0- 30		165
0- 40		264
0- 50		354
0- 60		423
0- 70		471
0- 80		493
0- 90		495
0-100		498
0-110		501
0-120		505
0-130		509
0-140		513
0-150		515
0-160		516
0-170		516
0-180		516



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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
0	118	118	118	118	115	115	115	115	109	109	109	103	103	103	98	98	98	96
1	109	105	101	98	106	102	99	96	97	95	92	93	91	89	89	87	85	83
2	100	93	87	82	97	91	85	80	87	82	78	83	79	76	79	76	73	71
3	92	82	75	69	89	81	74	68	77	71	67	74	69	65	71	67	63	61
4	85	74	66	59	82	72	65	59	69	63	58	66	61	56	64	59	55	53
5	78	66	58	52	76	65	57	51	62	56	50	60	54	50	58	53	49	47
6	73	60	52	46	70	59	51	45	57	50	45	55	49	44	53	47	43	41
7	67	55	46	41	66	54	46	40	52	45	40	50	44	39	48	43	39	37
8	63	50	42	37	61	49	42	36	48	41	36	46	40	35	45	39	35	33
9	59	46	38	33	57	45	38	33	44	37	32	43	37	32	41	36	32	30
10	55	43	35	30	54	42	35	30	41	34	30	40	34	29	39	33	29	27

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	10/31/2019
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	176F4E3	10/31/2019

3-Meter-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	10/31/2019
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	10/31/2019
<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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