

Project Number
18.01039



HUBBELL
Lighting

Date
8/22/2018

LAB #1
Sphere

Test Sample Description

Catalog Number: P350131-020-30

Description: 13" Diameter Antique Bronze Flush-Mount w/ Diffuse, 8" Diameter AC LED Module ~Sample PDA~ and Diffuse Domed-Glass Enclosure.

Photometry

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

Preburn Time: 0:10
Time To Stabilize: 0:45
Total Operating Time: 1:45

Input Voltage (Volts): 120.2
Input Current (Amps): 0.216
Input Wattage (Watts): 25.6
Ambient Temp (°C): 25.5

Sphere

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

Preburn Time: 0:40
Time To Stabilize: 1:04
Total Operating Time: 3:10

Input Voltage (Volts): 120.0
Input Current (Amps): 0.213
Input Wattage (Watts): 25.3
Ambient Temp (°C): 24
PF @ 120V: 0.986
THD @ 120V (%): 15.2

Hubbell Lighting, Inc.

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

Checked (sphere): M. ELLMANN
Checked (photometry): D. ROBBINS
Approved: B. HOUSAND



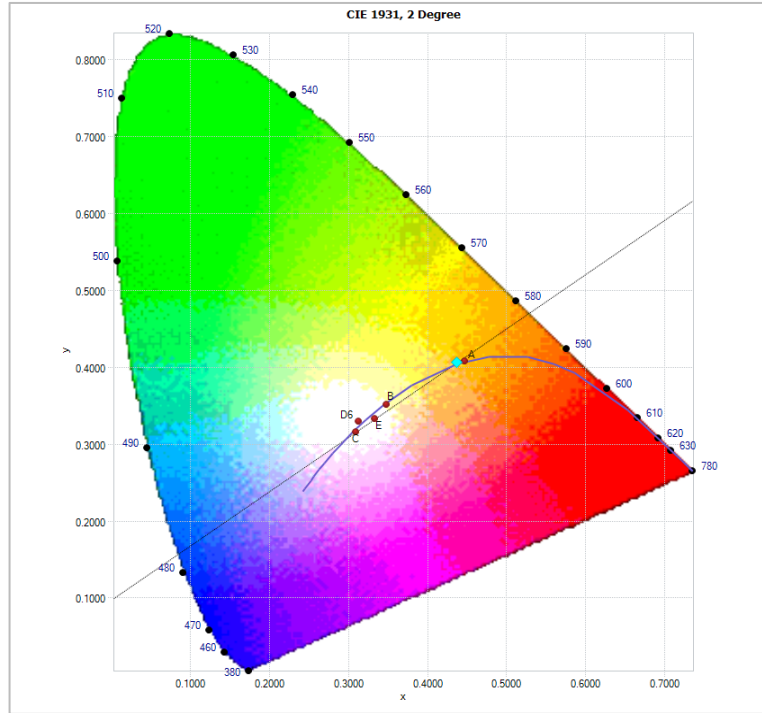


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Lamp Cat#: 93090367-3230
Lamp Desc: 60 - 3000K LEDs

Efficacy: 59.7 LPW S/P Ratio: 1.4 LM/LM

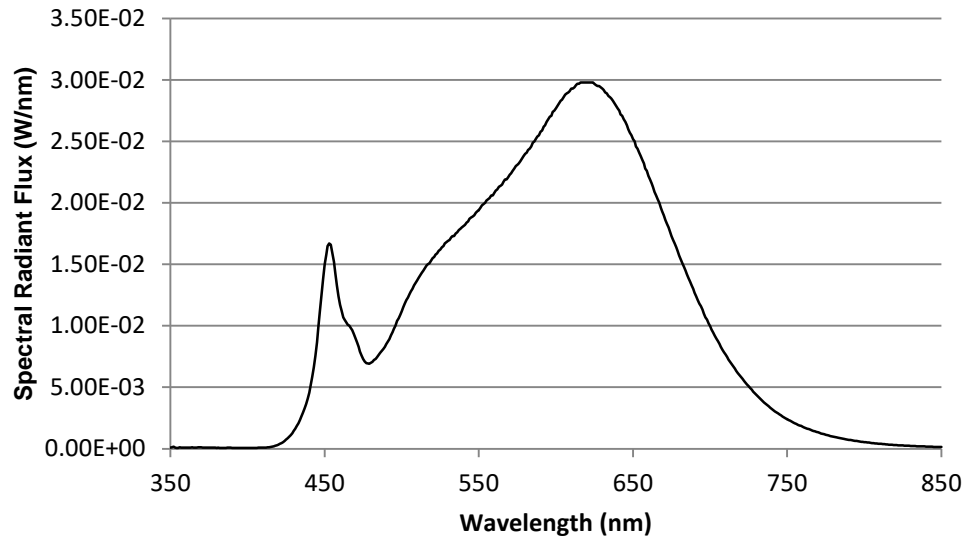
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	5.25	watts
Φ(v)	1511	lumens
Φ(v')	2150	lm'
Chrom x	0.4366	
Chrom y	0.4062	
Chrom u	0.2494	
Chrom v	0.3481	
Duv	0.0008	
Chrom u'	0.2494	
Chrom v'	0.5221	
CCT	3021	K
Purity	53	%
λ (dom)	582.4	nm
FWHM	166.4	nm
λ (peak)	620.1	nm
λ (center)	599.5	nm
λ (centroid)	594.8	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.0008952	
Correlation	0.0054	
R1	92.9	
R2	96.2	
R3	98.3	
R4	92.6	
R5	92.2	
R6	95.2	
R7	92.5	
R8	82.4	
R9	59.9	
R10	90.2	
R11	93.4	
R12	78.3	
R13	93.8	
R14	98.5	

Spectral Distribution of Radiant Flux





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LUMINAIRE: 13" Diameter Antique Bronze Flush-Mount w/ Diffuse, 8" Diameter
AC LED Module ~Sample PDA~ and Diffuse Domed-Glass Enclosure

LAMP CAT. NO.: 93090367-3230

LAMP: 60- 3000K LEDs

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



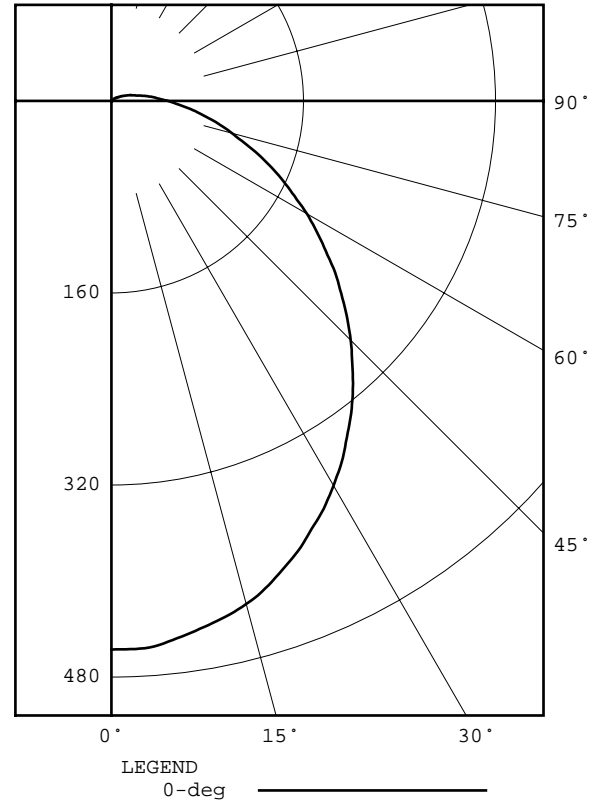
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DEG	CANDELA	LUMENS
0	457	
5	455	43
15	434	122
25	394	182
35	342	214
45	282	217
55	218	196
65	158	157
75	104	111
85	63	69
90	47	
95	35	38
105	18	20
115	9	9
125	4	4
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	347	25.1
0- 40	561	40.6
0- 60	974	70.5
0- 90	1311	94.8
90-120	67	4.9
90-130	71	5.1
90-150	71	5.2
90-180	71	5.2
0-180	1382	100.0

EFFICACY = 54.0 lm/W
CIE TYPE - DIRECT
SPACING CRITERION: 1.21
PLANE : 0-DEG 90-DEG
SHIELDING ANGLES : 90 90





®

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LUMINOUS DIAMETER: 13.000
HEIGHT OF SIDE : 4.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	3346.
55	2846.
65	2373.
75	1906.
85	1541.



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CANDELA DISTRIBUTION

0.0	457
5.0	455
10.0	445
15.0	434
20.0	416
25.0	394
30.0	370
35.0	342
40.0	313
45.0	282
50.0	250
55.0	218
60.0	188
65.0	158
70.0	130
75.0	104
80.0	82
85.0	63
90.0	47
95.0	35
100.0	25
105.0	18
110.0	13
115.0	9
120.0	6
125.0	4
130.0	3
135.0	0
140.0	0
145.0	0
150.0	0
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		11
5- 10		32
10- 15		52
15- 20		70
20- 25		85
25- 30		97
30- 35	105	
35- 40	109	
40- 45	110	
45- 50	107	
50- 55	102	
55- 60	94	
60- 65	84	
65- 70	73	
70- 75	61	
75- 80	50	
80- 85	39	
85- 90	30	
90- 95	22	
95-100	16	
100-105	11	
105-110	8	
110-115	6	
115-120	4	
120-125	2	
125-130	1	
130-135	0	
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		43
0- 20		165
0- 30		347
0- 40		561
0- 50		779
0- 60		974
0- 70	1131	
0- 80	1242	
0- 90	1311	
0-100	1349	
0-110	1369	
0-120	1378	
0-130	1382	
0-140	1382	
0-150	1382	
0-160	1382	
0-170	1382	
0-180	1382	



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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	118	118	118	118	118	114	114	114	114	108	108	108	103	103	103	97	97	97	95
1	106	101	96	92	92	103	98	94	90	93	89	86	88	85	82	83	81	79	76
2	96	87	80	74	74	93	85	78	73	81	75	70	76	72	68	73	69	66	63
3	88	77	68	61	61	85	75	67	60	71	64	59	67	62	57	64	59	55	53
4	80	68	59	52	52	77	66	58	51	63	56	50	60	54	49	57	52	47	45
5	74	61	51	45	45	71	59	50	44	56	49	43	54	47	42	51	46	41	39
6	68	54	45	39	39	66	53	45	38	51	43	38	49	42	37	47	41	36	34
7	63	49	41	34	34	61	48	40	34	46	39	33	44	38	33	43	37	32	30
8	59	45	37	31	31	57	44	36	30	42	35	30	41	34	29	39	33	29	27
9	55	41	33	28	28	53	41	33	27	39	32	27	38	31	27	36	30	26	24
10	52	38	30	25	25	50	38	30	25	36	29	24	35	29	24	34	28	24	22

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.



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>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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