

Project Number
17.02285



HUBBELL
Lighting

Date
8/24/2017

Lab 4
Sphere

Test Sample Description

Catalog Number: P350105-015-30
Description: 12 Inch Round Ceiling Flush Mount LED w/ 3.5 inch High Dome

Photometry

Test Method:	IES LM-79-08 § 10
Preburn Time:	0:40
Time To Stabilize:	0:30
Total Operating Time:	3:15
Input Voltage (Volts):	119.9
Input Current (Amps):	0.152
Input Wattage (Watts):	17.9
Ambient Temp (°C):	24.8

Sphere

Test Method:	IES LM-79-08 § 9.1 & 12.1
Preburn Time:	1:00
Time To Stabilize:	1:02
Total Operating Time:	2:02
Input Voltage (Volts):	120.0
Input Current (Amps):	0.149
Input Wattage (Watts):	17.5
Ambient Temp (°C):	24.0
PF @ 120V:	0.984
THD @ 120V (%):	19.3



Hubbell Lighting, Inc.

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

Checked (sphere): B. LEE
Checked (photometry): R. HALL
Approved: D. BLACK



This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

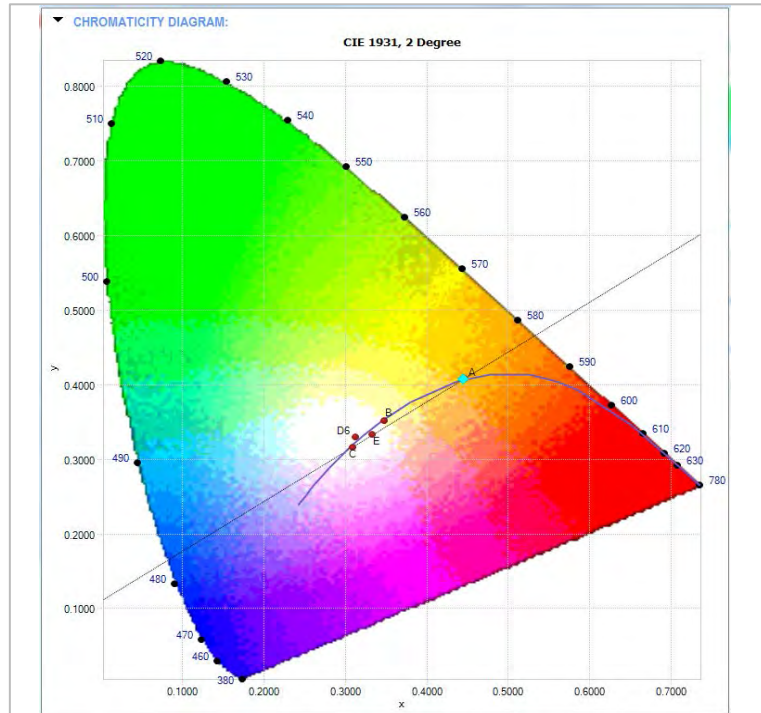


Lamp Cat#: 93047261-5130
 Lamp Desc: 40 - n/a 3000K LEDs
 Driver Desc: n/a

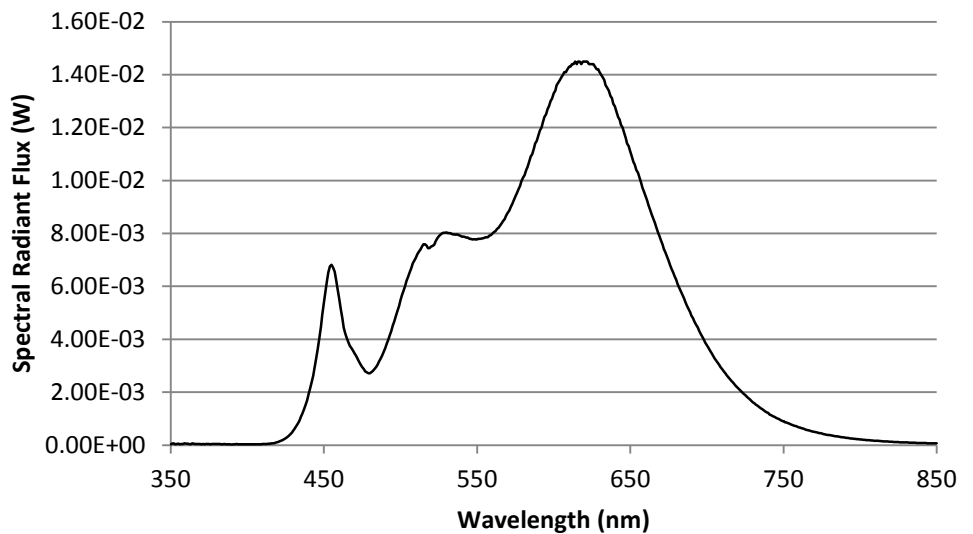
Efficacy: 38.3 LPW S/P Ratio: 1.4 LM/LM

Spectral Results

Name	Value	Unit
Φ	2.29	watts
Φ(v)	670	lumens
Φ(v')	958	lm'
Chrom x	0.445	
Chrom y	0.408	
Chrom u	0.2541	
Chrom v	0.3494	
Duv	0.0001	
Chrom u'	0.2541	
Chrom v'	0.5241	
CCT	2898	K
Purity	56.1	%
λ (dom)	583.1	nm
FWHM	162	nm
λ (peak)	619.9	nm
λ (center)	592.3	nm
λ (centroid)	593.6	nm
SDCM	Cool White	
RA	96	
Corr. Coef.	0.000563043	
Correlation	0.0054	
R1	99.0	
R2	99.4	
R3	98.1	
R4	98.8	
R5	99.2	
R6	94.1	
R7	92.1	
R8	84.1	
R9	64.6	
R10	98.7	
R11	92.3	
R12	87.3	
R13	99.3	
R14	99.1	



Spectral Distribution of Radiant Flux



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LUMINAIRE: 12 Inch Round Ceiling Flush Mount LED w/ 3.5 inch High Dome

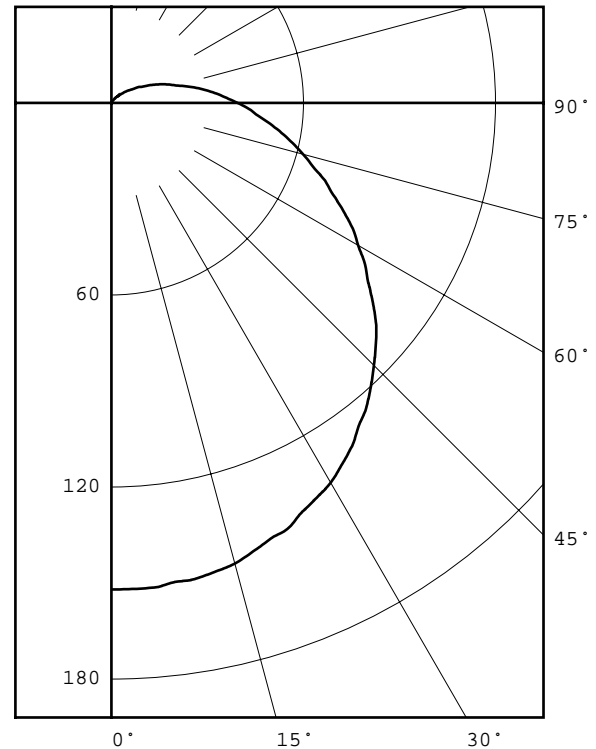
LAMP CAT. NO.: 93047261-5130

LAMP: 40 - 3000K LEDs

DEG	CANDELA	LUMENS
0	152	
5	152	14
15	149	42
25	141	65
35	131	82
45	116	90
55	98	88
65	80	79
75	62	66
85	46	51
90	40	
95	33	36
105	21	23
115	13	13
125	7	6
135	3	3
145	1	1
155	0	0
165	0	0
175	0	0
180	0	0

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	122	18.5
0- 40	204	30.9
0- 60	381	57.9
0- 90	577	87.6
90-120	72	10.9
90-130	78	11.9
90-150	82	12.4
90-180	82	12.4
0-180	659	100.0

TOTAL INPUT WATTS = 17.926
EFFICACY = 36.8 Lm/W
CIE TYPE - SEMI-DIRECT
LUMINAIRE SPACING CRITERION = 1.3





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LUMINOUS DIAMETER: 12.000
HEIGHT OF SIDE : 3.500

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE AVERAGE

IN DEG

45	1639.
55	1530.
65	1444.
75	1375.
85	1379.



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CANDELA DISTRIBUTION

	0.0
0.0	152
5.0	152
10.0	151
15.0	149
20.0	145
25.0	141
30.0	137
35.0	131
40.0	124
45.0	116
50.0	108
55.0	98
60.0	89
65.0	80
70.0	71
75.0	62
80.0	54
85.0	46
90.0	40
95.0	33
100.0	27
105.0	21
110.0	17
115.0	13
120.0	10
125.0	7
130.0	5
135.0	3
140.0	2
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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ZONAL LUMEN SUMMARY

0- 5	4.
5- 10	11.
10- 15	18.
15- 20	24.
20- 25	30.
25- 30	35.
30- 35	39.
35- 40	42.
40- 45	44.
45- 50	45.
50- 55	45.
55- 60	43.
60- 65	41.
65- 70	38.
70- 75	35.
75- 80	31.
80- 85	27.
85- 90	24.
90- 95	20.
95-100	16.
100-105	13.
105-110	10.
110-115	8.
115-120	5.
120-125	4.
125-130	3.
130-135	2.
135-140	1.
140-145	1.
145-150	0.
150-155	0.
155-160	0.
160-165	0.
165-170	0.
170-175	0.
175-180	0.



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**5-DEGREE
ZONAL LUMEN SUMMARY**

0- 5	4
5- 10	11
10- 15	18
15- 20	24
20- 25	30
25- 30	35
30- 35	39
35- 40	42
40- 45	44
45- 50	45
50- 55	45
55- 60	43
60- 65	41
65- 70	38
70- 75	35
75- 80	31
80- 85	27
85- 90	24
90- 95	20
95-100	16
100-105	13
105-110	10
110-115	8
115-120	5
120-125	4
125-130	3
130-135	2
135-140	1
140-145	1
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	14
0- 20	56
0- 30	122
0- 40	204
0- 50	293
0- 60	381
0- 70	461
0- 80	526
0- 90	577
0-100	613
0-110	636
0-120	649
0-130	655
0-140	658
0-150	659
0-160	659
0-170	659
0-180	659



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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	116	116	116	116	116	112	112	112	112	112	104	104	104	97	97	97	91	91	91	88
1	103	97	91	86	86	99	93	88	84	84	87	83	79	80	77	74	75	72	70	67
2	92	83	75	68	68	88	80	72	66	66	74	68	63	69	64	59	64	60	56	53
3	83	72	63	55	55	80	69	61	54	54	64	57	51	60	54	49	56	51	46	44
4	76	63	53	46	46	73	61	52	45	45	57	49	43	53	46	41	49	44	39	36
5	70	56	46	39	39	67	54	45	38	38	50	43	37	47	40	35	44	38	34	31
6	64	50	41	34	34	61	48	40	33	33	45	38	32	42	36	31	40	34	29	27
7	59	45	36	30	30	57	44	35	29	29	41	33	28	38	32	27	36	30	26	24
8	55	41	32	26	26	53	40	31	26	26	37	30	25	35	29	24	33	27	23	21
9	51	38	29	23	23	49	36	28	23	23	34	27	22	32	26	21	30	25	21	19
10	48	35	26	21	21	46	34	26	21	21	32	25	20	30	24	19	28	23	19	17

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 LUMINAIRE SAMPLE.

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Goniophotometer Calibration

Calibration Lamp: Osram ST8-HA4-250-840 22 W/4000 K
Lamp Number: RM B6-28
Ballast: Vossloh Schwabe LN 36.149
Ballast Number: RM B6-28
Calibration Voltage/Frequency: 220Vac / 50hz
Total Luminous Flux: 2463 Lumens
Calibration Date: 01/19/2017

<i>Test Equipment Used</i>			
<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	LMT/GO-DS 1600 Lab 4- Test Dist.: 31.0'	10B6231	02/17/2019
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27074V	11/02/2017
<i>Power Source</i>	Chroma / 61604	616040003897	10/27/2017
<i>Thermometer</i>	LMT / ATS-4Ch	10B623-3	12/14/2017

Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10
Lamp Number: SCL-1400-J136
Calibration Current: 2.679 Amps
Total Luminous Flux: 1427 Lumens

<i>Test Equipment Used - Color & SPD; THD & Power Factor</i>			
<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>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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