

Project Number
19.01337



HUBBELL
Lighting

Date
7/30/2019

Photometric Test Report

LAB #1
Sphere

Test Sample Description

Catalog Number: P810023-009-30
Description: 11" Round Down Light w/ Glass Shade and Polycarbonate Refractor

Photometry

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

Preburn Time: 0:10
Time To Stabilize: 0:56
Total Operating Time: 1:45

Input Voltage (Volts): 120.2
Input Current (Amps): 0.168
Input Wattage (Watts): 20.0
Ambient Temp (°C): 25.8

Sphere

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

Preburn Time: 0:10
Time To Stabilize: 1:05
Total Operating Time: 1:15

Input Voltage (Volts): 120.1
Input Current (Amps): 0.165
Input Wattage (Watts): 19.7
Ambient Temp (°C): 24
PF @ 120V: 0.99
THD @ 120V (%): 14.8



Hubbell Lighting, Inc.

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

Checked (sphere): B. LEE
Checked (photometry): D. ROBBINS
Approved: _____


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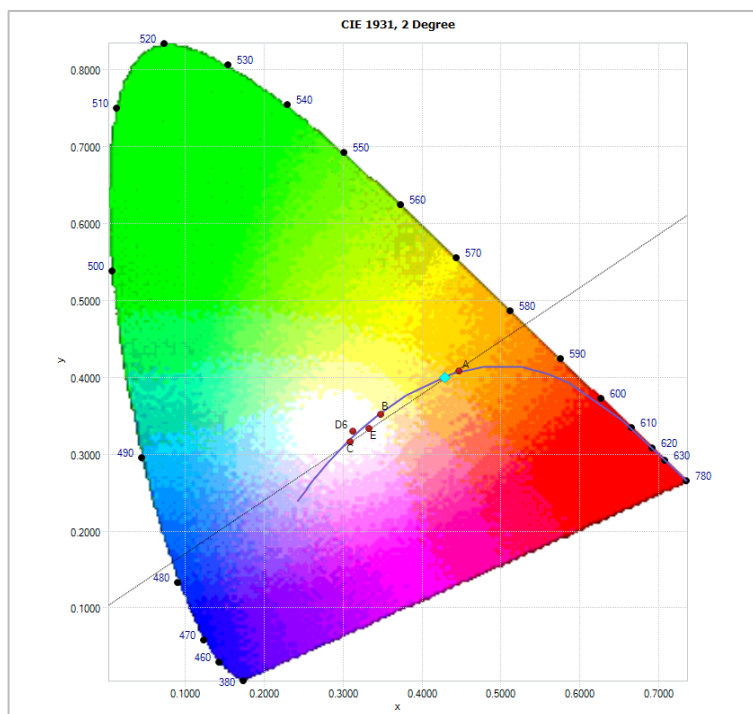
Lamp Cat#: 2835

Lamp Desc: 80 - Bridgelux 3000K LEDs

Efficacy: 67.4 LPW

S/P Ratio: 1.5 LM/LM

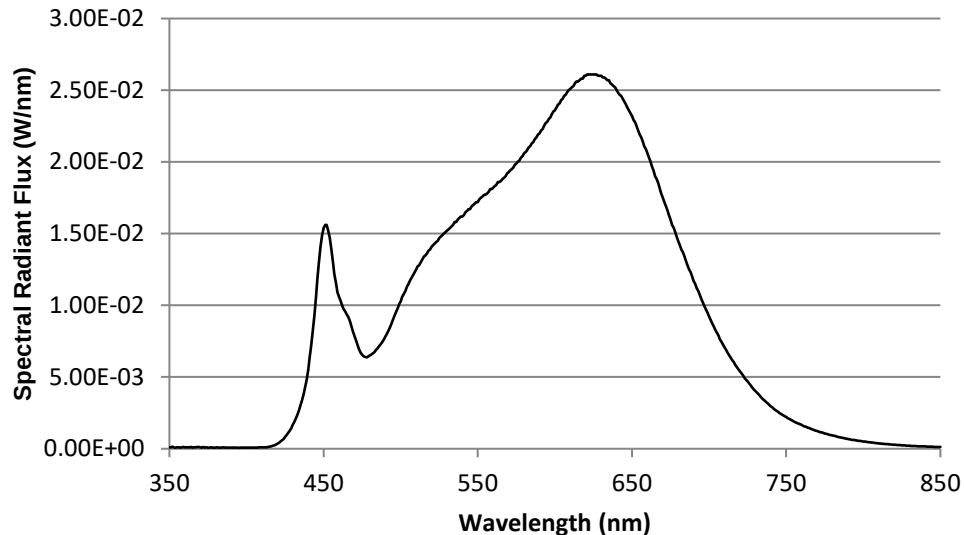
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	4.72	watts
$\Phi(v)$	1328	lumens
$\Phi(v')$	1956	lm'
Chrom x	0.4292	
Chrom y	0.3996	
Chrom u	0.2475	
Chrom v	0.3456	
Duv	0.0012	
Chrom u'	0.2475	
Chrom v'	0.5184	
CCT	3095	K
Purity	48.8	%
λ (dom)	582.7	nm
FWHM	171.8	nm
λ (peak)	622.5	nm
λ (center)	599.2	nm
λ (centroid)	594.1	nm
SDCM	Cool White	
RA	95	
Corr. Coef.	0.000714714	
Correlation	0.0054	
R1	95.5	
R2	97.3	
R3	97.4	
R4	95.3	
R5	95.0	
R6	95.9	
R7	94.4	
R8	87.5	
R9	71.4	
R10	92.5	
R11	95.9	
R12	81.1	
R13	96.2	
R14	97.8	

Spectral Distribution of Radiant Flux





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LUMINAIRE: 11" Round Down Light w/ Glass Shade and Polycarbonate Refractor

LAMP CAT. NO.: 2835

LAMP: 80- Bridgelux 3000K LEDs

MOUNTING: Surface

NOTE: NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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CANDELA DISTRIBUTION

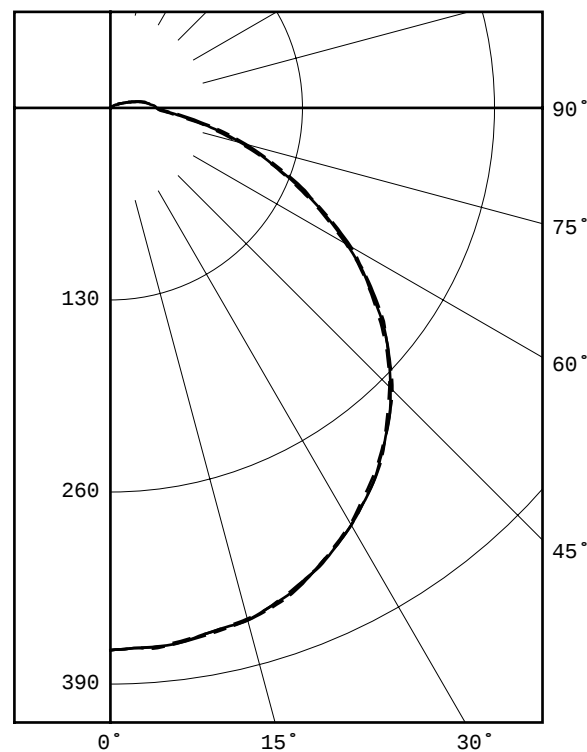
	0.0	45.0	90.0	135.0	180.0	
0	367	367	367	367	367	
5	366	367	366	366	367	35
15	358	358	359	359	359	101
25	339	339	340	339	339	156
35	308	309	310	310	310	193
45	267	267	268	269	270	207
55	214	215	215	216	217	192
65	151	152	153	153	154	152
75	90	91	92	93	95	98
85	40	41	42	42	44	48
90	32	32	31	31	32	
95	28	28	27	26	28	30
105	16	17	16	15	15	17
115	6	6	6	6	6	6
125	2	3	2	2	3	3
135	0	0	0	0	0	0
145	0	0	0	0	0	0
155	0	0	0	0	0	0
165	0	0	0	0	0	0
175	0	0	0	0	0	0
180	0	0	0	0	0	0

FLUX

ZONAL ZONE	LUMEN LUMENS	SUMMARY LUMENS	%FIXT
0- 30		292	23.6
0- 40		486	39.3
0- 60		885	71.5
0- 90		1182	95.5
90-120		53	4.3
90-130		56	4.5
90-150		56	4.5
90-180		56	4.5
0-180		1238	100.0

EFFICACY = 61.9 lm/W
CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG 180-DEG
SPACING CRITERIA : 1.31 1.32 1.32
SHIELDING ANGLES : 90 90



LEGEND
0-deg - - - - -
90-deg - - - - -
180-deg - - - - -



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LUMINOUS DIAMETER: 7.500
HEIGHT OF SIDE : 0.750

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	11752.	11796.	11884.
55	11076.	11128.	11231.
65	9847.	9977.	10043.
75	8270.	8454.	8730.
85	6558.	6886.	7214.



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CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	367	367	367	367	367	367	367	367	367
5.0	366	366	367	366	366	366	366	366	367
10.0	362	362	362	362	362	362	362	362	363
15.0	358	359	358	358	359	358	359	359	359
20.0	350	350	350	350	351	351	351	351	352
25.0	339	339	339	339	340	339	339	339	339
30.0	325	325	325	325	326	326	326	326	326
35.0	308	309	309	309	310	310	310	309	310
40.0	289	289	289	290	290	290	290	291	290
45.0	267	267	267	268	268	268	269	268	270
50.0	242	242	243	243	244	243	243	244	244
55.0	214	213	215	215	215	215	216	216	217
60.0	184	184	185	186	185	186	186	186	188
65.0	151	152	152	153	153	154	153	154	154
70.0	120	119	121	122	121	122	122	123	124
75.0	90	90	91	93	92	93	93	93	95
80.0	63	62	63	65	64	65	65	66	67
85.0	40	40	41	42	42	42	42	42	44
90.0	32	31	32	33	31	31	31	30	32
95.0	28	28	28	29	27	27	26	26	28
100.0	23	23	23	24	22	22	22	21	23
105.0	16	16	17	17	16	16	15	15	15
110.0	10	10	11	11	10	10	10	10	10
115.0	6	6	6	6	6	6	6	6	6
120.0	4	4	4	4	4	4	4	4	5
125.0	2	2	3	3	2	3	2	3	3
130.0	2	2	2	2	2	2	2	2	2
135.0	0	0	0	0	0	0	0	0	0
140.0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		9
5- 10		26
10- 15		43
15- 20		58
20- 25		72
25- 30		84
30- 35		93
35- 40		100
40- 45		103
45- 50		103
50- 55		100
55- 60		93
60- 65		82
65- 70		69
70- 75		56
75- 80		42
80- 85		28
85- 90		19
90- 95		16
95-100		14
100-105		10
105-110		7
110-115		4
115-120		2
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		35
0- 20		136
0- 30		292
0- 40		486
0- 50		692
0- 60		885
0- 70		1037
0- 80		1134
0- 90		1182
0-100		1211
0-110		1229
0-120		1235
0-130		1238
0-140		1238
0-150		1238
0-160		1238
0-170		1238
0-180		1238



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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	95
1	107	101	97	92	103	99	94	90	93	90	87	89	86	83	84	82	80	78
2	96	88	80	74	93	85	79	73	81	75	71	77	72	68	73	70	66	64
3	88	77	68	61	85	75	67	60	71	64	59	68	62	57	64	60	56	53
4	80	68	58	51	77	66	57	51	63	55	50	60	54	48	57	52	47	45
5	73	60	51	44	71	59	50	44	56	48	43	54	47	42	51	46	41	39
6	68	54	45	38	65	53	44	38	50	43	37	48	42	36	46	40	36	34
7	63	49	40	34	61	48	39	33	46	38	33	44	37	32	42	36	32	30
8	58	44	36	30	56	44	35	30	42	34	29	40	34	29	39	33	28	26
9	54	41	32	27	53	40	32	27	38	31	26	37	30	26	36	30	25	23
10	51	38	29	24	49	37	29	24	36	28	24	34	28	23	33	27	23	21

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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7/30/2019

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: 10/7/10/17

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
Goniophotometer	ITL/HLI LAB 1 - Test Distance: 31.74'	N/A	N/A
Power Analyzer	Yokogawa / WT 332	C2QA27071V	10/31/2019
Power Source	Voltage-Regulated House Power	N/A	N/A
Thermometer	National Instruments / USB-TC01	176F4E3	10/31/2019

Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10

Lamp Number: SCL-1400-K136

Calibration Current: 2.679 Amps

Total Luminous Flux: 1429 Lumens

Test Equipment Used - Color & SPD; THD & Power Factor

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
3-Meter Sphere	Labsphere / LMS-3M	N/A	Calibration Checked Daily
Thermometer	National Instruments / USB TC01	1912751	10/31/2019
Power Analyzer	Yokogawa / WT332	C2QA27074V	10/31/2019
Power Supply	Chroma / 61602	616020002113	N/A
Power Supply PF/THD	Voltage-Regulated House Power	N/A	N/A
Aux Lamp Supply	GW Instek / PSU 150-10	GER221028	N/A
Cal Lamp Supply	Labsphere / LPS-150-0268	1218148505	N/A
Spectrometer	Labsphere / CDS 1100	0624117792	N/A

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