

Project Number
18.00946



HUBBELL
Lighting

Date
6/7/2018

Lab 1
Sphere

Test Sample Description

Catalog Number: P300208-009-30

Description: 2ft LED Rectangular-Cross-Section Vanity w/ Acrylic Refractor

Photometry

Test Method: IES LM-41-14
IES LM-79-08 §10

Preburn Time: 0:55

Time To Stabilize: 0:45

Total Operating Time: 3:50

Input Voltage (Volts): 120.1

Input Current (Amps): 0.189

Input Wattage (Watts): 22.0

Ambient Temp (°C): 24.9

Sphere

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

Preburn Time: 2:00

Time To Stabilize: 1:02

Total Operating Time: 3:02

Input Voltage (Volts): 120.0

Input Current (Amps): 0.186

Input Wattage (Watts): 21.9

Ambient Temp (°C): 24.4



Hubbell Lighting, Inc.

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

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



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Lamp Cat#: 2835 0.2W

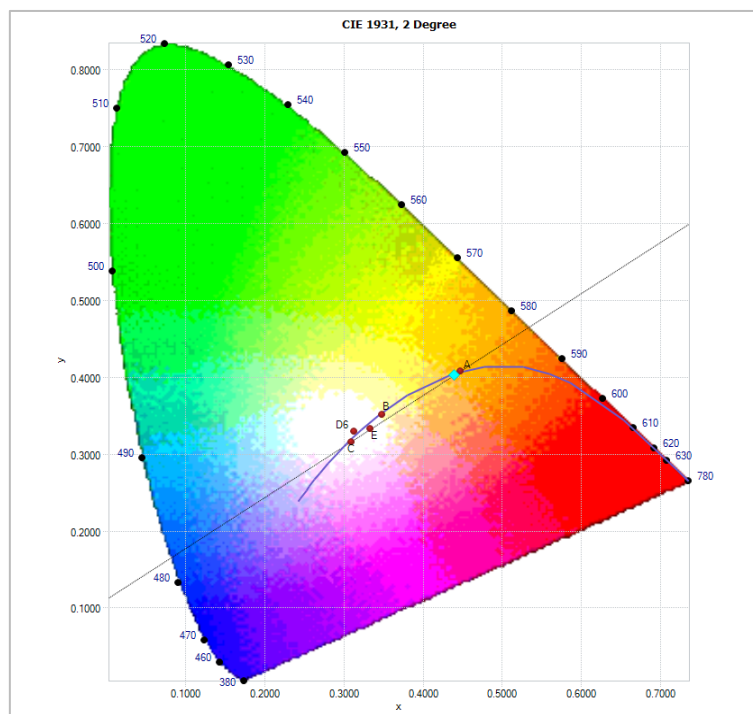
Lamp Desc: 110 - Edison 3000K LEDs

Driver Desc: 1 - Becky BQE36-0550-40-TD

Programmed to 550mA

Efficacy: 73.3 LPW S/P Ratio: 1.4 LM/LM

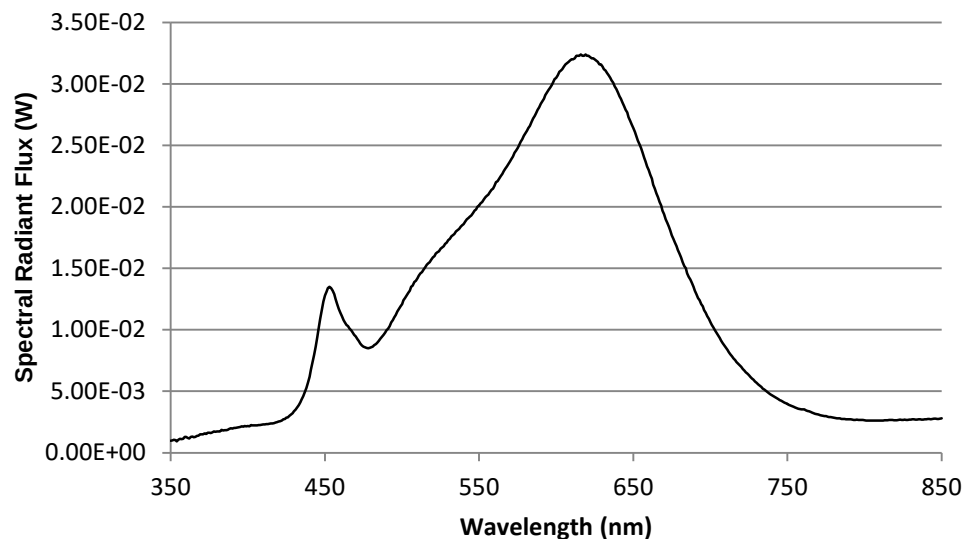
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	5.95	watts
$\Phi(v)$	1606	lumens
$\Phi(v')$	2265	lm'
Chrom x	0.4393	
Chrom y	0.4036	
Chrom u	0.2523	
Chrom v	0.3477	
Duv	0.0007	
Chrom u'	0.2523	
Chrom v'	0.5215	
CCT	2955	K
Purity	53	%
λ (dom)	583.2	nm
FWHM	157.8	nm
λ (peak)	618.6	nm
λ (center)	601.1	nm
λ (centroid)	598.5	nm
SDCM	Cool White	
RA	92	
Corr. Coef.	0.000530548	
Correlation	0.0054	
R1	92.3	
R2	97.0	
R3	98.3	
R4	91.9	
R5	92.5	
R6	96.7	
R7	90.4	
R8	79.1	
R9	54.2	
R10	92.4	
R11	92.9	
R12	87.2	
R13	93.7	
R14	99.7	

Spectral Distribution of Radiant Flux





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REPORT NUMBER: 18.00946

PAGE: 3 OF 9

ISSUE DATE: 06/07/18

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CATALOG NUMBER: P300208-009-30

LUMINAIRE: 2ft LED Rectangular-Cross-Section
Vanity w/ Acrylic Refractor

LAMP CAT. NO.: 2835 0.2W

LAMP: 110- Edison 3000K LEDs

BALLAST CATALOG NUMBER: BQE36-0550-40-TD

BALLAST: 1- Becky - Programmed to 550mA

MOUNTING: Wall

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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REPORT NUMBER: 18.00946

PAGE: 4 OF 9

ISSUE DATE: 06/07/18

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CATALOG NUMBER: P300208-009-30

CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0
0	43	43	43	43	43
5	12	50	60	54	9
15	147	83	58	66	92
25	209	150	63	81	83
35	252	193	67	74	79
45	287	211	67	60	67
55	313	224	53	49	52
65	332	230	36	33	37
75	341	228	19	17	23
85	338	222	4	10	18
90	335	218	2	10	18
95	315	199	0	0	0
105	314	204	0	0	4
115	306	205	14	14	18
125	287	198	31	31	34
135	260	186	46	43	50
145	225	169	49	59	62
155	185	131	49	64	73
165	96	63	47	61	80
175	31	40	52	39	21
180	37	37	37	37	37

FLUX

5
23
51
79
101
115
122
121
116
101
99
100
96
84
66
43
19
4

ZONAL LUMEN SUMMARY

ZONE	LUMEN LUMENS	%FIXT
0- 30	78	5.8
0- 40	157	11.7
0- 60	373	27.7
0- 90	732	54.4
90-120	300	22.3
90-130	396	29.4
90-150	546	40.6
90-180	612	45.6
0-180	1344	100.0

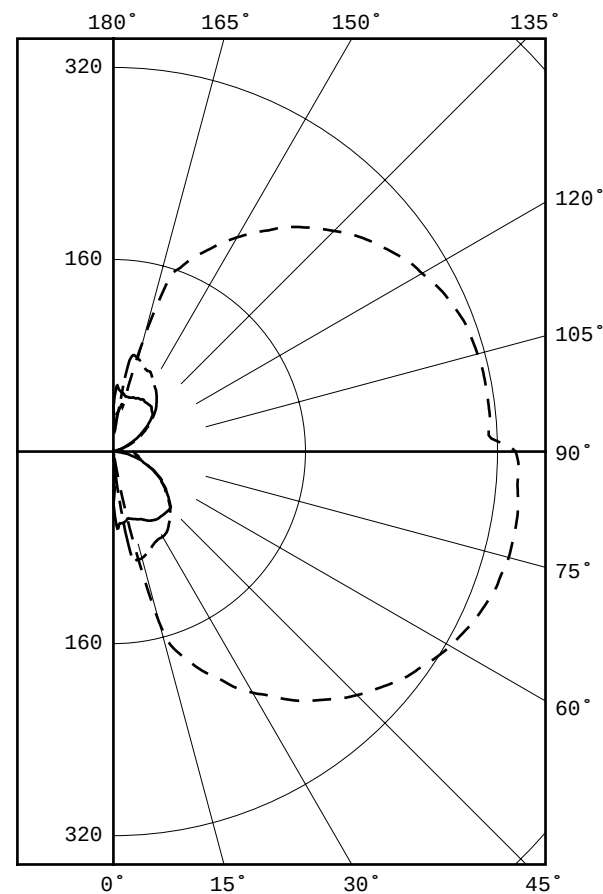
EFFICACY = 61.1 lm/W

CIE TYPE - GENERAL DIFFUSE

PLANE : 0-DEG 90-DEG 180-DEG

SPACING CRITERIA : 0.12 2.10 0.05

SHIELDING ANGLES : 90 90



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



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CATALOG NUMBER: P300208-009-30

PAGE: 5 OF 9

PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 1.750 22.500
HEIGHT OF SIDE : 3.000 3.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE AVERAGE AVERAGE
IN DEG 0-DEG 90-DEG 180-DEG
45 5886. 3291. 1374.
55 6230. 3056. 1035.
65 6613. 2608. 737.
75 7011. 1930. 473.
85 7413. 716. 395.



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REPORT NUMBER: 18.00946

PAGE: 6 OF 9

ISSUE DATE: 06/07/18

PREPARED FOR: PROGRESS

CATALOG NUMBER: P300208-009-30

CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	43	43	43	43	43	43	43	43	43
5.0	12	33	50	58	60	56	54	46	9
10.0	13	59	63	60	59	59	64	57	90
15.0	147	94	83	64	58	64	66	81	92
20.0	187	162	104	73	60	67	73	88	88
25.0	209	197	150	85	63	69	81	83	83
30.0	232	218	179	104	66	76	79	80	82
35.0	252	236	193	124	67	76	74	76	79
40.0	270	252	203	131	67	69	67	69	73
45.0	287	267	211	133	67	66	60	63	67
50.0	301	279	219	132	60	60	53	54	59
55.0	313	289	224	131	53	53	49	49	52
60.0	324	298	228	129	45	45	41	45	46
65.0	332	304	230	125	36	36	33	36	37
70.0	338	308	230	121	27	27	26	28	28
75.0	341	309	228	116	19	18	17	21	23
80.0	341	309	226	111	12	11	13	19	21
85.0	338	306	222	105	4	5	10	16	18
90.0	335	303	218	101	2	4	10	16	18
95.0	315	283	199	85	0	0	0	0	0
100.0	315	284	202	89	0	0	0	0	1
105.0	314	284	204	94	0	0	0	2	4
110.0	312	282	205	98	5	7	6	8	9
115.0	306	278	205	102	14	16	14	17	18
120.0	297	272	203	105	23	25	23	25	26
125.0	287	264	198	108	31	33	31	33	34
130.0	275	253	194	110	40	41	37	39	42
135.0	260	241	186	110	46	46	43	46	50
140.0	244	227	178	108	49	51	50	53	56
145.0	225	212	169	99	49	57	59	59	62
150.0	206	193	157	81	50	59	63	66	67
155.0	185	175	131	68	49	59	64	71	73
160.0	163	141	96	59	48	57	64	73	75
165.0	96	89	63	52	47	50	61	69	80
170.0	40	46	45	49	49	47	52	58	77
175.0	31	20	40	49	52	48	39	40	21
180.0	37	37	37	37	37	37	37	37	37



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CATALOG NUMBER: P300208-009-30

PAGE: 7 OF 9

5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		1
5- 10		4
10- 15		8
15- 20		14
20- 25		22
25- 30		29
30- 35		36
35- 40		43
40- 45		48
45- 50		53
50- 55		56
55- 60		59
60- 65		61
65- 70		61
70- 75		61
75- 80		60
80- 85		59
85- 90		57
90- 95		51
95-100		50
100-105		49
105-110		49
110-115		50
115-120		50
120-125		49
125-130		47
130-135		44
135-140		40
140-145		36
145-150		30
150-155		25
155-160		18
160-165		12
165-170		7
170-175		3
175-180		1

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		5
0- 20		27
0- 30		78
0- 40		157
0- 50		258
0- 60		373
0- 70		495
0- 80		616
0- 90		732
0-100		832
0-110		931
0-120		1031
0-130		1127
0-140		1212
0-150		1278
0-160		1321
0-170		1340
0-180		1344



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CATALOG NUMBER: P300208-009-30

PAGE: 8 OF 9

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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60	54
1	94	88	83	78	87	81	76	72	69	65	61	57	54	51	46	44	42	37
2	84	74	66	60	77	69	62	56	58	52	47	48	43	40	38	35	32	27
3	76	64	55	48	69	59	51	44	49	43	38	41	36	31	32	29	25	21
4	69	56	46	39	63	51	43	36	43	36	31	35	30	26	28	24	21	17
5	62	49	39	32	57	45	37	30	38	31	26	31	26	21	25	20	17	14
6	57	43	34	27	52	40	32	26	34	27	22	28	22	18	22	18	14	11
7	53	39	30	23	48	36	28	22	30	23	19	25	19	15	20	16	12	10
8	49	35	26	20	44	32	24	19	27	21	16	22	17	13	18	14	11	8
9	45	32	23	18	41	29	22	17	25	18	14	20	15	12	16	12	9	7
10	42	29	21	16	38	27	19	15	23	17	12	19	14	10	15	11	8	6

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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6/7/2018

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>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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