

Project Number
18.00964



HUBBELL
Lighting

Date
6/12/2018
Rev 1: 06/26/2018

Lab 1
Sphere

Test Sample Description

Catalog Number: P300213-009-30

Description: 4ft LED Rectangular-Cross-Section Vanity with Acrylic Refractor and Decorative Tubing

Revision 1: Sphere-retest report added to original report

Photometry

IES LM-46-04

Test Method: IES LM-79-08 §10

Preburn Time: 1:05

Time To Stabilize: 1:15

Total Operating Time: 2:40

Input Voltage (Volts): 120.0

Input Current (Amps): 0.377

Input Wattage (Watts): 44.1

Ambient Temp (°C): 24.9

Sphere

IES LM-16-93

Test Method: IES LM-79-08 § 9.1 & 12.1

Preburn Time: 1:00

Time To Stabilize: 1:01

Total Operating Time: 2:01

Input Voltage (Volts): 120.0

Input Current (Amps): 0.374

Input Wattage (Watts): 43.9

Ambient Temp (°C): 24.5



Hubbell Lighting, Inc.

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

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



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#: 2835 0.2W

Lamp Desc: 220 - Edison 3000K LEDs

Driver Desc: 2 - Becky BQE36-0550-40-TD

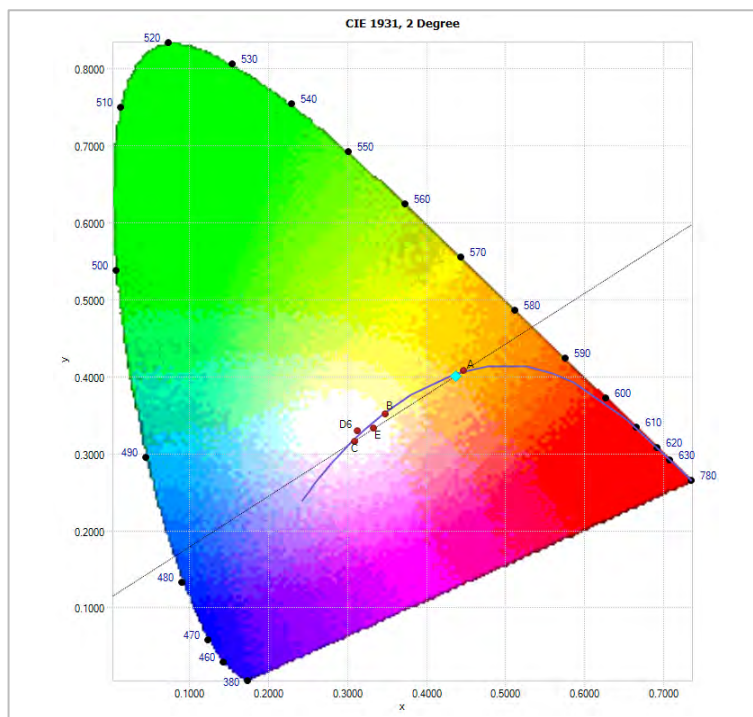
Programmed to 550mA

Efficacy: 74.9 LPW S/P Ratio: 1.4 LM'/LM

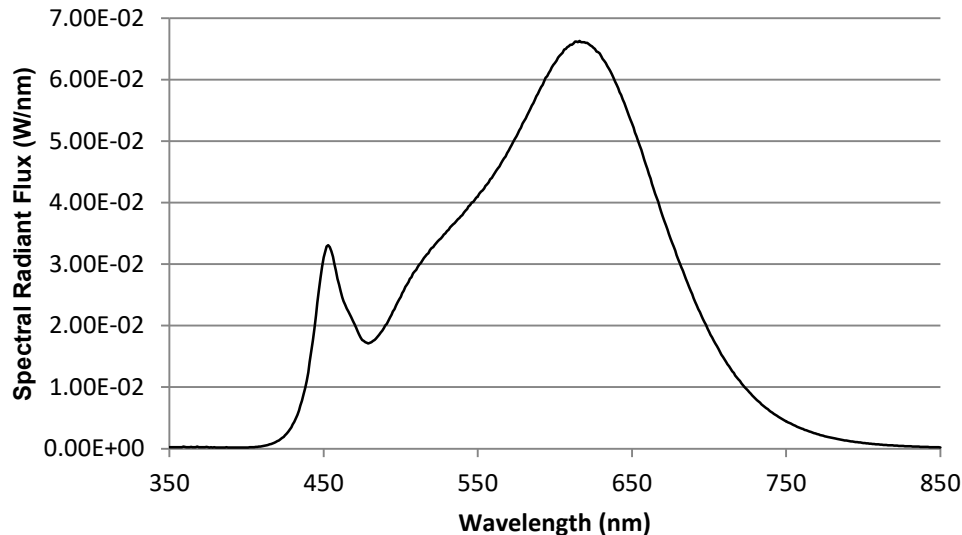
Spectral Results

Name	Value	Unit
Φ	11.23	watts
$\Phi(v)$	3288	lumens
$\Phi(v')$	4684	lm'
Chrom x	0.4368	
Chrom y	0.4014	
Chrom u	0.2516	
Chrom v	0.3469	
Duv	0.0012	
Chrom u'	0.2516	
Chrom v'	0.5203	
CCT	2978	K
Purity	51.6	%
λ (dom)	583.3	nm
FWHM	154.5	nm
λ (peak)	615.1	nm
λ (center)	599.3	nm
λ (centroid)	591.6	nm
SDCM	Cool White	
RA	92	
Corr. Coef.	0.001077063	
Correlation	0.0054	
R1	92.2	
R2	97.3	
R3	97.7	
R4	91.3	
R5	92.3	
R6	96.3	
R7	89.6	
R8	78.1	
R9	52.6	
R10	93.0	
R11	92.4	
R12	82.8	
R13	93.8	
R14	99.7	

Chromaticity Diagram



Spectral Distribution of Radiant Flux





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LUMINAIRE: 4ft LED Rectangular-Cross-Section

Vanity with Acrylic Refractor and Decorative Tubing

LAMP CAT. NO.: 2835 0.2W

LAMP: 220- Edison 3000K LEDs

BALLAST CATALOG NUMBER: BQE36-0550-40-TD

BALLAST: 2- Becky - Programmed to 550mA

MOUNTING: Wall

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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CANDELA DISTRIBUTION

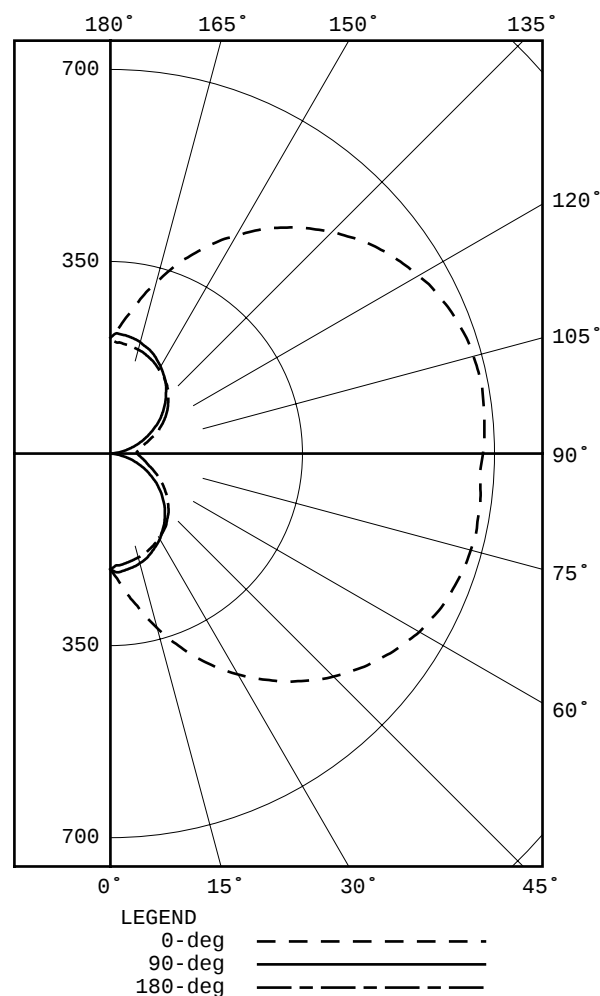
	0.0	45.0	90.0	135.0	180.0
0	211	211	211	211	211
5	243	230	216	202	204
15	329	282	207	195	196
25	422	335	190	182	185
35	504	383	167	164	170
45	575	420	140	143	150
55	629	446	107	116	123
65	665	459	72	86	95
75	680	457	36	55	69
85	677	444	6	36	54
90	679	441	0	31	49
95	684	448	7	33	50
105	685	461	38	54	64
115	666	461	74	87	95
125	627	447	111	118	124
135	571	419	143	143	149
145	501	381	171	165	170
155	416	332	194	183	185
165	322	278	210	196	196
175	238	226	218	203	203
180	211	211	211	211	211

FLUX

21
67
117
166
208
237
250
248
238
239
250
252
238
208
166
117
67
21

ZONAL ZONE	LUMEN	SUMMARY LUMENS	%FIXT
0- 30		206	6.6
0- 40		372	12.0
0- 60		816	26.2
0- 90		1552	49.9
90-120		741	23.8
90-130		979	31.5
90-150		1353	43.5
90-180		1558	50.1
0-180		3110	100.0

EFFICACY = 70.5 lm/W
CIE TYPE - GENERAL DIFFUSE
PLANE : 0-DEG 90-DEG 180-DEG
SPACING CRITERIA : 3.04 1.26 1.26
SHIELDING ANGLES : 90 90





®

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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 1.750 46.500
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 5706. 3543. 1489.
55 6058. 3254. 1185.
65 6409. 2851. 916.
75 6765. 2135. 686.
85 7184. 755. 573.



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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	211	211	211	211	211	211	211	211	211
5.0	243	239	230	219	216	205	202	204	204
10.0	282	276	254	229	212	200	199	201	200
15.0	329	317	282	238	207	195	195	197	196
20.0	376	359	309	246	200	189	190	192	191
25.0	422	399	335	253	190	181	182	185	185
30.0	465	436	360	259	180	171	173	177	178
35.0	504	472	383	262	167	161	164	168	170
40.0	541	505	402	265	154	149	153	159	160
45.0	575	532	420	265	140	136	143	148	150
50.0	604	558	435	264	124	123	130	135	137
55.0	629	579	446	261	107	107	116	121	123
60.0	650	594	454	256	89	93	101	107	109
65.0	665	607	459	249	72	76	86	92	95
70.0	674	614	460	240	53	59	69	77	81
75.0	680	617	457	229	36	43	55	65	69
80.0	680	616	451	219	19	27	43	56	61
85.0	677	612	444	210	6	18	36	49	54
90.0	679	613	441	205	0	12	31	45	49
95.0	684	619	448	213	7	17	33	45	50
100.0	688	623	456	223	22	30	41	51	56
105.0	685	623	461	233	38	45	54	61	64
110.0	678	618	463	243	56	61	71	76	77
115.0	666	609	461	252	74	79	87	93	95
120.0	648	595	456	258	92	94	102	108	110
125.0	627	577	447	263	111	110	118	122	124
130.0	602	556	435	267	127	125	131	136	137
135.0	571	531	419	267	143	138	143	148	149
140.0	538	501	402	266	158	152	155	159	161
145.0	501	469	381	263	171	163	165	169	170
150.0	458	433	357	258	183	173	174	177	177
155.0	416	394	332	253	194	183	183	185	185
160.0	371	354	305	246	203	191	190	191	191
165.0	322	312	278	237	210	198	196	196	196
170.0	277	272	250	228	215	203	200	200	200
175.0	238	235	226	219	218	206	203	203	203
180.0	211	211	211	211	211	211	211	211	211



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		5
5- 10		16
10- 15		28
15- 20		40
20- 25		52
25- 30		65
30- 35		77
35- 40		89
40- 45		99
45- 50		108
50- 55		116
55- 60		121
60- 65		124
65- 70		126
70- 75		125
75- 80		123
80- 85		120
85- 90		118
90- 95		118
95-100		121
100-105		124
105-110		126
110-115		127
115-120		125
120-125		122
125-130		116
130-135		109
135-140		99
140-145		89
145-150		77
150-155		65
155-160		52
160-165		40
165-170		27
170-175		16
175-180		5

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		21
0- 20		88
0- 30		206
0- 40		372
0- 50		579
0- 60		816
0- 70		1066
0- 80		1314
0- 90		1552
0-100		1791
0-110		2041
0-120		2293
0-130		2531
0-140		2739
0-150		2905
0-160		3022
0-170		3089
0-180		3110



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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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	94	88	83	78	86	81	76	72	67	64	61	55	52	50	44	42	40	34
2	84	75	67	61	77	69	62	56	57	52	47	46	42	39	36	33	31	26
3	76	64	56	49	69	59	51	45	49	43	38	40	35	31	31	27	24	20
4	69	56	47	40	63	52	43	37	43	36	31	35	30	26	27	23	20	16
5	63	50	40	34	57	45	37	31	38	31	26	31	25	22	24	20	17	13
6	58	44	35	29	52	40	32	27	34	27	22	27	22	18	21	17	14	11
7	53	40	31	25	48	36	28	23	30	24	19	25	20	16	19	15	12	
8	49	36	27	21	45	33	25	20	27	21	17	22	17	14	18	14	11	8
9	46	32	24	19	42	30	23	18	25	19	15	20	16	12	16	12	10	7
10	42	30	22	17	39	27	20	16	23	17	13	19	14	11	15	11	9	7

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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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Date
6/12/2018
Rev 1: 06/26/2018

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>		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

<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	Calibration Checked Daily
<i>Temperature Meter</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