

Project Number
18.00958



HUBBELL
Lighting

Date
6/12/2018

Lab 1
Sphere

Test Sample Description

Catalog Number: P300225-009-30
Description: 4ft Circular-Cross-Section LED Vanity with Acrylic Refractor

Photometry

Test Method: IES LM-46-04
IES LM-79-08 §10
Preburn Time: 1:05
Time To Stabilize: 1:35
Total Operating Time: 3:10

Input Voltage (Volts): 120.2
Input Current (Amps): 0.375
Input Wattage (Watts): 43.6
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: 0:50
Total Operating Time: 2:50

Input Voltage (Volts): 120.0
Input Current (Amps): 0.370
Input Wattage (Watts): 43.4
Ambient Temp (°C): 24.5



Hubbell Lighting, Inc.

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

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



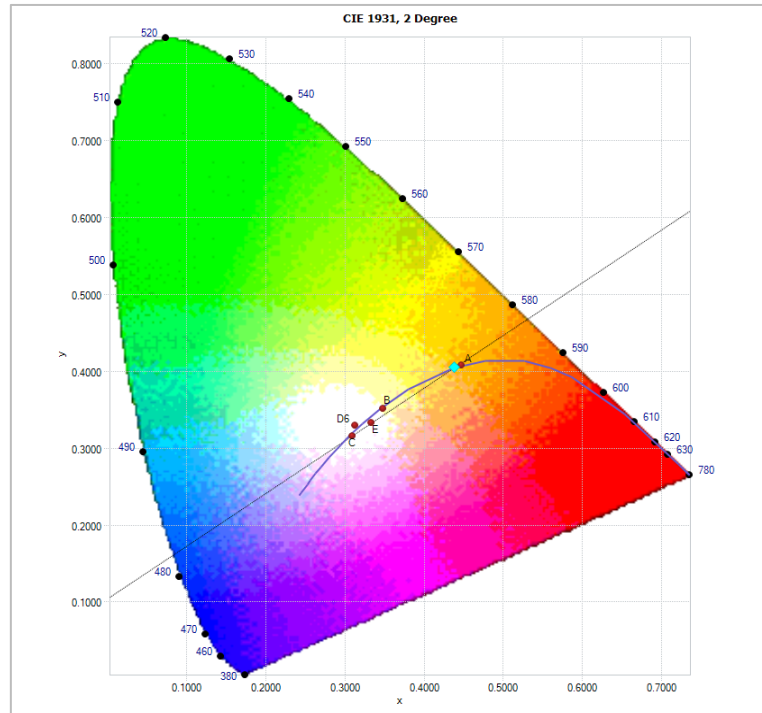
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Lamp Cat#: 2835 0.5W
 Lamp Desc: 88 - Edison 3000K LEDs
 Driver Desc: 2 - Becky BQE36-0550-40-TD
 Programmed to 550mA

Efficacy: 81.2 LPW S/P Ratio: 1.4 LM/LM

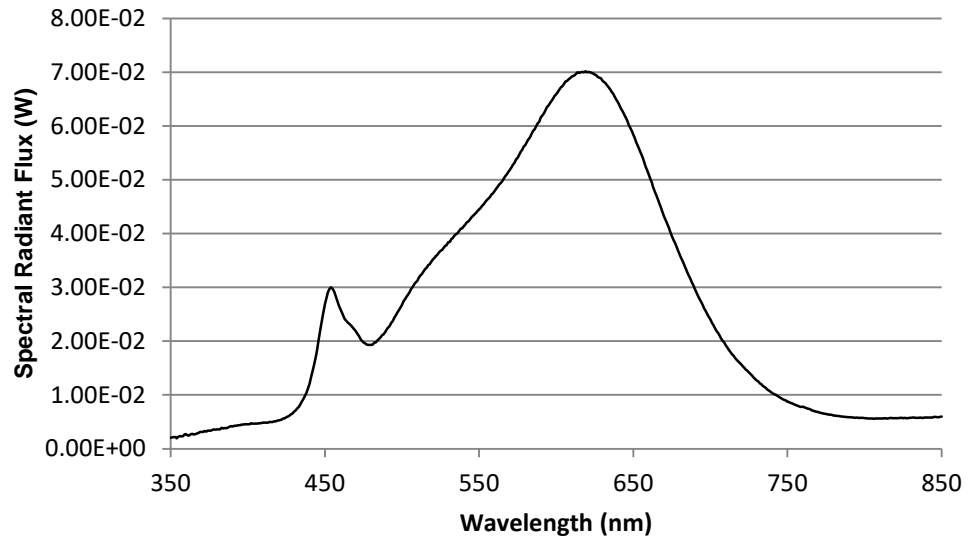
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	13.06	watts
Φ(v)	3522	lumens
Φ(v')	5008	lm'
Chrom x	0.4382	
Chrom y	0.4051	
Chrom u	0.251	
Chrom v	0.348	
Duv	0.0001	
Chrom u'	0.251	
Chrom v'	0.522	
CCT	2985	K
Purity	53.1	%
λ (dom)	582.8	nm
FWHM	162	nm
λ (peak)	618.6	nm
λ (center)	600.7	nm
λ (centroid)	598.9	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.000279639	
Correlation	0.0054	
R1	92.7	
R2	97.0	
R3	98.7	
R4	92.2	
R5	92.7	
R6	96.8	
R7	91.2	
R8	80.5	
R9	56.8	
R10	92.3	
R11	93.0	
R12	85.8	
R13	93.9	
R14	99.6	

Spectral Distribution of Radiant Flux





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LUMINAIRE: 4ft Circular-Cross-Section LED
Vanity with Acrylic Refractor

LAMP CAT. NO.: 2835 0.5W

LAMP: 88- 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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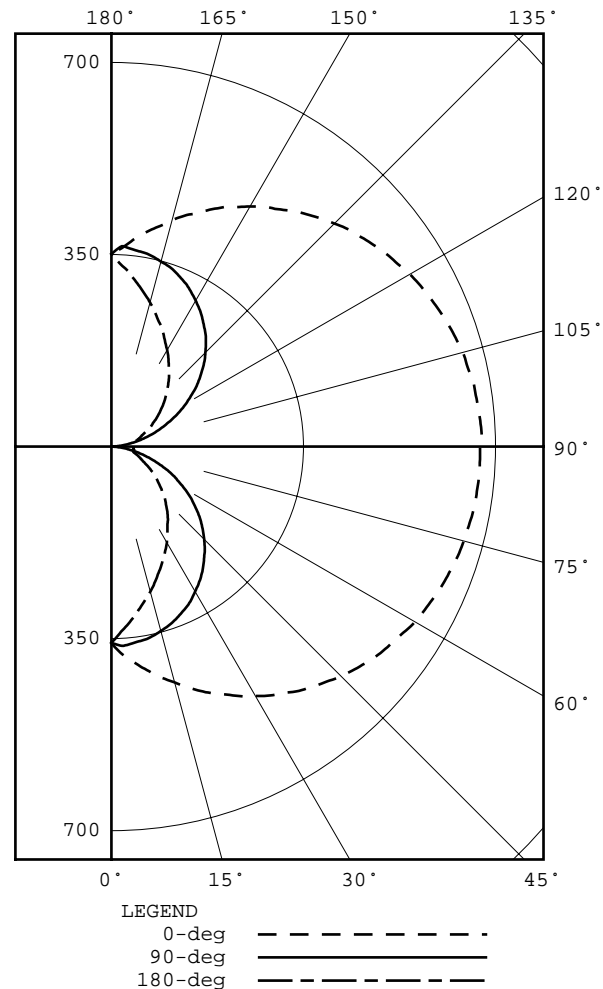
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CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
0	358	358	358	358	358	
5	390	378	362	333	327	34
15	445	411	348	291	274	100
25	499	436	323	244	224	157
35	548	451	286	196	178	203
45	592	458	239	150	139	234
55	624	458	184	107	99	249
65	649	453	124	67	64	249
75	665	446	62	35	43	239
85	672	439	11	24	40	231
90	672	437	0	23	40	
95	673	438	15	24	39	232
105	663	443	66	42	50	241
115	641	448	126	73	74	249
125	612	449	188	112	107	248
135	575	447	242	154	143	232
145	528	437	288	198	182	200
155	481	419	325	243	225	154
165	427	395	349	287	272	98
175	373	364	363	330	323	33
180	351	351	351	351	351	

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	291	8.6
0- 40	494	14.6
0- 60	978	28.9
0- 90	1696	50.1
90-120	723	21.4
90-130	970	28.7
90-150	1402	41.4
90-180	1687	49.9
0-180	3384	100.0

EFFICACY = 77.6 lm/W
CIE TYPE - GENERAL DIFFUSE
PLANE : 0-DEG 90-DEG 180-DEG
SPACING CRITERIA : 2.24 1.27 0.87
SHIELDING ANGLES : 90 90





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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 3.000 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 4651. 3528. 1092.
55 4978. 3264. 790.
65 5426. 2864. 535.
75 6033. 2145. 390.
85 6892. 807. 410.



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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	358	358	358	358	358	358	358	358	358
5.0	390	386	378	370	362	344	333	330	327
10.0	418	412	396	376	357	329	313	305	299
15.0	445	437	411	379	348	312	291	280	274
20.0	474	460	425	380	337	294	268	254	248
25.0	499	481	436	378	323	273	244	229	224
30.0	525	502	444	373	305	250	220	206	202
35.0	548	522	451	364	286	227	196	182	178
40.0	571	539	455	353	263	202	172	161	159
45.0	592	555	458	340	239	177	150	141	139
50.0	610	568	459	325	213	151	129	121	118
55.0	624	579	458	307	184	124	107	100	99
60.0	639	588	457	288	154	99	87	82	81
65.0	649	595	453	268	124	76	67	64	64
70.0	658	599	449	249	92	54	49	51	53
75.0	665	603	446	230	62	34	35	41	43
80.0	670	607	442	214	35	18	26	36	40
85.0	672	608	439	204	11	10	24	36	40
90.0	672	607	437	200	0	8	23	37	40
95.0	673	609	438	203	15	12	24	35	39
100.0	670	607	440	214	38	23	32	39	42
105.0	663	602	443	229	66	39	42	48	50
110.0	653	595	446	246	95	58	56	58	59
115.0	641	588	448	266	126	80	73	73	74
120.0	628	577	449	284	157	103	92	89	89
125.0	612	567	449	301	188	128	112	107	107
130.0	594	554	448	319	216	154	133	127	125
135.0	575	540	447	333	242	179	154	146	143
140.0	553	523	443	345	267	204	175	165	163
145.0	528	505	437	354	288	227	198	186	182
150.0	505	485	429	361	307	250	221	207	203
155.0	481	464	419	367	325	272	243	230	225
160.0	453	443	409	370	339	292	266	253	247
165.0	427	420	395	369	349	310	287	276	272
170.0	400	396	381	366	358	326	309	300	296
175.0	373	372	364	360	363	340	330	324	323
180.0	351	351	351	351	351	351	351	351	351



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	9
5- 10	26
10- 15	42
15- 20	58
20- 25	72
25- 30	85
30- 35	97
35- 40	106
40- 45	114
45- 50	120
50- 55	124
55- 60	125
60- 65	125
65- 70	124
70- 75	121
75- 80	118
80- 85	116
85- 90	115
90- 95	115
95-100	117
100-105	119
105-110	122
110-115	124
115-120	125
120-125	125
125-130	123
130-135	119
135-140	113
140-145	105
145-150	95
150-155	84
155-160	71
160-165	56
165-170	41
170-175	25
175-180	8

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	34
0- 20	134
0- 30	291
0- 40	494
0- 50	729
0- 60	978
0- 70	1226
0- 80	1465
0- 90	1696
0-100	1928
0-110	2170
0-120	2419
0-130	2667
0-140	2899
0-150	3098
0-160	3253
0-170	3350
0-180	3384



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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	107	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	95	89	84	79		87	82	77	73	68	65	62	56	54	51	45	43	41	36
2	85	76	69	62		78	70	63	58	58	53	49	48	44	40	38	35	32	28
3	77	66	57	51		70	61	53	47	50	45	40	41	37	33	32	29	26	22
4	70	58	49	42		64	53	45	39	44	38	33	36	31	28	28	25	22	18
5	64	51	42	35		58	47	39	33	39	33	28	32	27	23	25	22	19	15
6	59	46	37	30		54	42	34	28	35	29	24	29	24	20	23	19	16	13
7	54	41	32	26		49	38	30	25	32	26	21	26	21	18	21	17	14	11
8	50	37	29	23		46	34	27	21	29	23	18	24	19	15	19	15	12	10
9	47	34	26	20		43	31	24	19	26	20	16	22	17	14	17	14	11	9
10	43	31	23	18		40	28	22	17	24	18	15	20	16	12	16	13	10	8

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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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 - 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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