

Project Number
19.01445



HUBBELL
Lighting

Date
8/14/2019

Photometric Test Report

Lab 1
Sphere

Test Sample Description

Catalog Number: P810021-030-30
Description: 14in Square Edgelit Panel - Tooled Lens

Photometry

Test Method: IES LM-41-14
IES LM-79-08 §10
Preburn Time: 1:00
Time To Stabilize: 0:26
Total Operating Time: 2:00

Input Voltage (Volts): 120.0
Input Current (Amps): 0.165
Input Wattage (Watts): 19.3
Ambient Temp (°C): 25.9

Sphere

Test Method: IES LM-16-93
IES LM-79-08 §12.1
Preburn Time: 8:00
Time To Stabilize: 0:58
Total Operating Time: 8:58

Input Voltage (Volts): 120.0
Input Current (Amps): 0.165
Input Wattage (Watts): 19.3
Ambient Temp (°C): 24



Hubbell Lighting, Inc.

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

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



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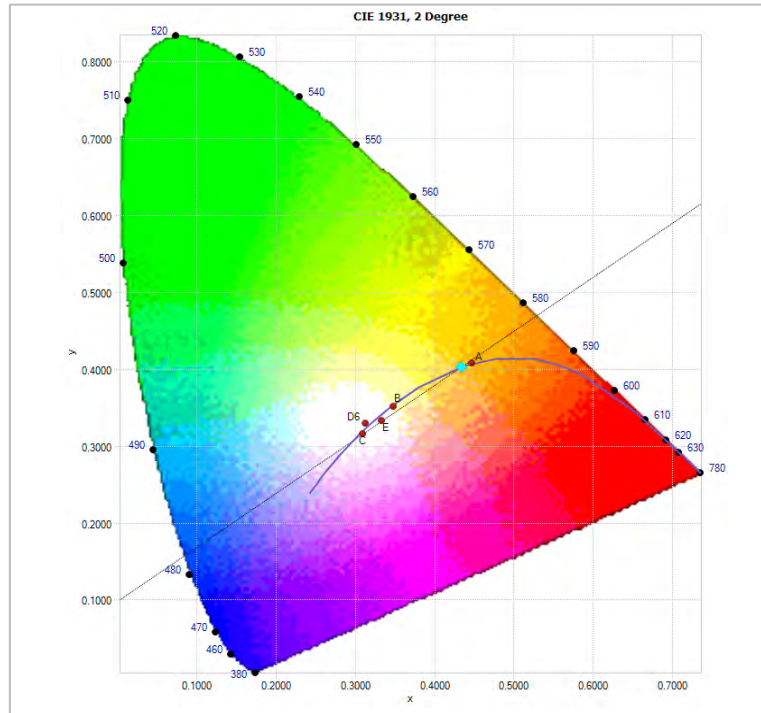


Lamp Cat#: 3528
 Lamp Desc: 108 - Seoul 3000K LEDs
 Driver Desc: 1 - Alpha
 Programmed to 470mA

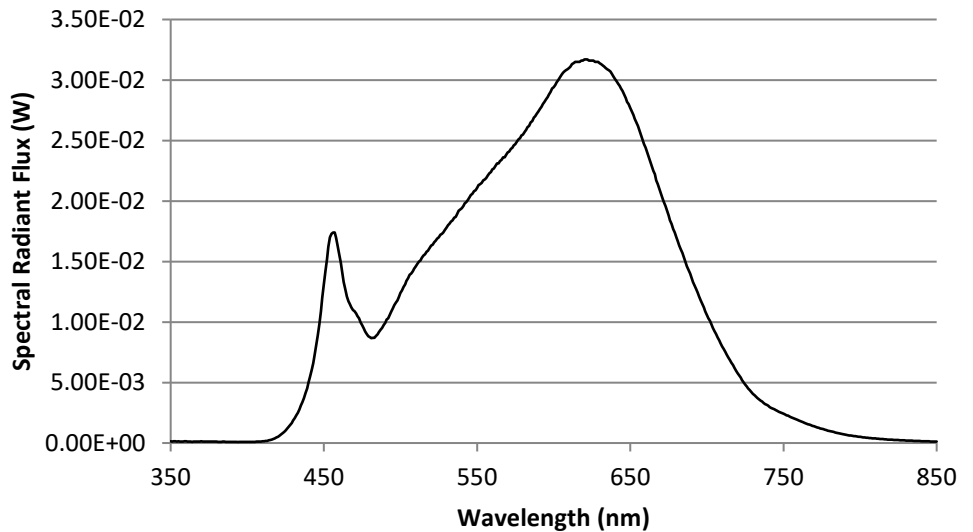
Efficacy: 84.0 LPW S/P Ratio: 1.5 LM/LM

Spectral Results

Name	Value	Unit
Φ	5.65	watts
$\Phi(v)$	1621	lumens
$\Phi(v')$	2354	lm'
Chrom x	0.4338	
Chrom y	0.4038	
Chrom u	0.2487	
Chrom v	0.3472	
Duv	0.0003	
Chrom u'	0.2487	
Chrom v'	0.5208	
CCT	3049	K
Purity	51.4	%
λ (dom)	582.5	nm
FWHM	166.1	nm
λ (peak)	621.7	nm
λ (center)	600.4	nm
λ (centroid)	593.5	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.000390469	
Correlation	0.0054	
R1	93.6	
R2	97.3	
R3	98.9	
R4	92.3	
R5	92.9	
R6	96.1	
R7	92.4	
R8	83.6	
R9	63.9	
R10	92.5	
R11	92.7	
R12	79.7	
R13	94.7	
R14	99.0	



Spectral Distribution of Radiant Flux



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LUMINAIRE: 14in Square Edgelit Panel - Tooled Lens

LAMP CAT. NO.: 3528

LAMP: 108- Seoul 3000K LEDs

BALLAST: 1- Alpha - Programmed to 470mA

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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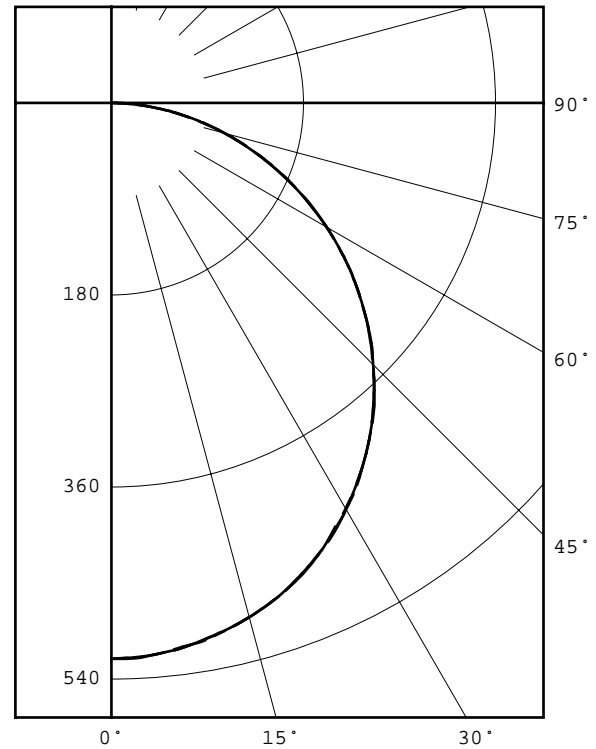
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CANDELA DISTRIBUTION						FLUX
	0.0	22.5	45.0	67.5	90.0	
0	521	521	521	521	521	
5	518	518	518	518	518	49
15	499	499	499	499	499	141
25	464	464	464	464	464	214
35	412	412	412	412	412	258
45	346	346	347	346	347	268
55	273	272	273	273	273	244
65	192	191	192	191	192	190
75	111	110	110	109	110	116
85	32	31	32	31	32	35
90	1	0	0	0	1	
95	0	0	0	0	0	0
105	0	0	0	0	0	0
115	0	0	0	0	0	0
125	0	0	0	0	0	0
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

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	404	26.7
0- 40	661	43.7
0- 60	1173	77.5
0- 90	1513	100.0
90-120	0	0.0
90-130	0	0.0
90-150	0	0.0
90-180	0	0.0
0-180	1513	100.0

EFFICACY = 78.4 lm/W
CIE TYPE - DIRECT
PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.25 1.26
SHIELDING ANGLES : 90 90



LEGEND
0-deg - - - - -
45-deg ————
90-deg - . - . - .



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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH :12.500 12.500

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE AVERAGE AVERAGE
IN DEG 0-DEG 45-DEG 90-DEG
45 4854. 4868. 4868.
55 4722. 4722. 4722.
65 4507. 4507. 4507.
75 4254. 4216. 4216.
85 3642. 3642. 3642.



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CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	521	521	521	521	521
5.0	518	518	518	518	518
10.0	510	510	510	510	511
15.0	499	499	499	499	499
20.0	484	484	484	483	484
25.0	464	464	464	464	464
30.0	439	440	440	439	440
35.0	412	412	412	412	412
40.0	381	381	381	381	382
45.0	346	346	347	346	347
50.0	311	311	311	311	311
55.0	273	272	273	273	273
60.0	233	232	233	232	233
65.0	192	191	192	191	192
70.0	151	150	150	150	151
75.0	111	110	110	109	110
80.0	70	69	70	69	70
85.0	32	31	32	31	32
90.0	1	0	0	0	1
95.0	0	0	0	0	0
100.0	0	0	0	0	0
105.0	0	0	0	0	0
110.0	0	0	0	0	0
115.0	0	0	0	0	0
120.0	0	0	0	0	0
125.0	0	0	0	0	0
130.0	0	0	0	0	0
135.0	0	0	0	0	0
140.0	0	0	0	0	0
145.0	0	0	0	0	0
150.0	0	0	0	0	0
155.0	0	0	0	0	0
160.0	0	0	0	0	0
165.0	0	0	0	0	0
170.0	0	0	0	0	0
175.0	0	0	0	0	0
180.0	0	0	0	0	0



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		12
5- 10		37
10- 15		60
15- 20		81
20- 25		99
25- 30		114
30- 35		125
35- 40		132
40- 45		135
45- 50		133
50- 55		127
55- 60		117
60- 65		103
65- 70		86
70- 75		68
75- 80		48
80- 85		27
85- 90		8
90- 95		0
95-100		0
100-105		0
105-110		0
110-115		0
115-120		0
120-125		0
125-130		0
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		49
0- 20		190
0- 30		404
0- 40		661
0- 50		929
0- 60		1173
0- 70		1362
0- 80		1478
0- 90		1513
0-100		1513
0-110		1513
0-120		1513
0-130		1513
0-140		1513
0-150		1513
0-160		1513
0-170		1513
0-180		1513



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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	119	119	119	119	116	116	116	116	111	111	111	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	106	101	97	93	97	94	90	93	90	88	89	87	85	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	78	74	71	69
3	90	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	69	64	60	58
4	82	70	61	54	80	68	60	53	66	58	53	63	57	52	61	56	51	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	55	49	44	42
6	69	56	47	40	67	55	46	40	53	45	40	51	45	39	50	44	39	50	44	39	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	35	45	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	42	36	31	29
9	56	42	34	28	55	42	34	28	41	33	28	40	33	28	39	32	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	25	36	30	25	36	30	25	24

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

<i>Test Equipment Used</i>			
<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	10/31/2019
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	176F4E3	10/31/2019

3-Meter-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	Calibration Checked Daily
<i>Thermometer</i>	National Instruments / USB TC01	1912751	10/31/2019
<i>Power Analyzer</i>	Yokogawa / WT332	C2QA27074V	10/31/2019
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Aux Lamp Supply</i>	GW Instek / PSU 150-10	GER221028	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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