

Project Number
19.01444



HUBBELL
Lighting

Date
8/14/2019

Photometric Test Report

Lab 1
Sphere

Test Sample Description

Catalog Number: P810020-030-30
Description: 11in Square Edgelit Panel - Tooled Lens

Photometry

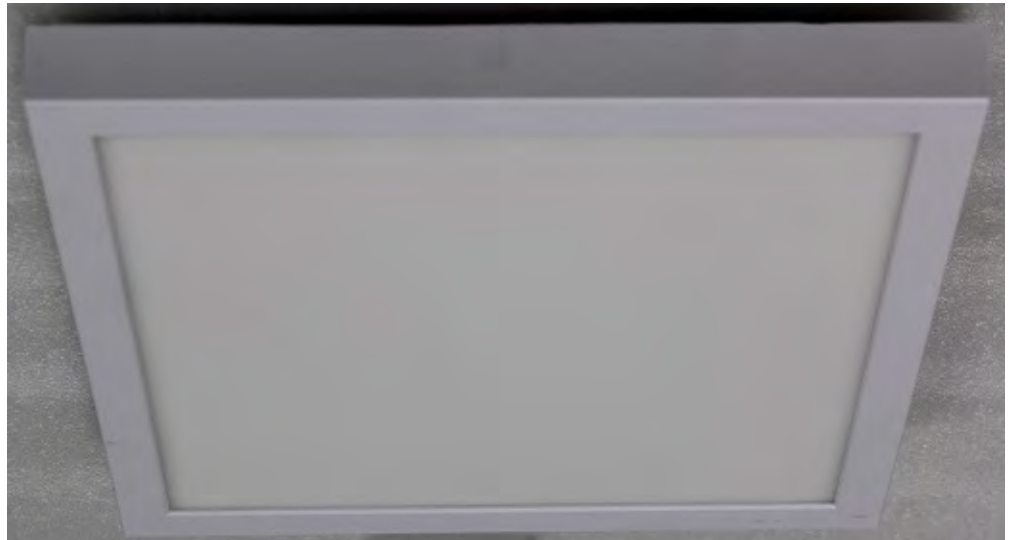
IES LM-41-14
Test Method: IES LM-79-08 §10
Preburn Time: 0:10
Time To Stabilize: 0:56
Total Operating Time: 2:26

Input Voltage (Volts): 119.9
Input Current (Amps): 0.143
Input Wattage (Watts): 16.7
Ambient Temp (°C): 25.8

Sphere

IES LM-16-93
Test Method: IES LM-79-08 §12.1
Preburn Time: 1:00
Time To Stabilize: 0:59
Total Operating Time: 1:59

Input Voltage (Volts): 120.1
Input Current (Amps): 0.143
Input Wattage (Watts): 16.7
Ambient Temp (°C): 24



Hubbell Lighting, Inc.

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

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



TESTING
NVLAP LAB CODE: 201003-0

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Lamp Cat#: 3528

Lamp Desc: 84 - Seoul 3000K LEDs

Driver Desc: 1 - Alpha

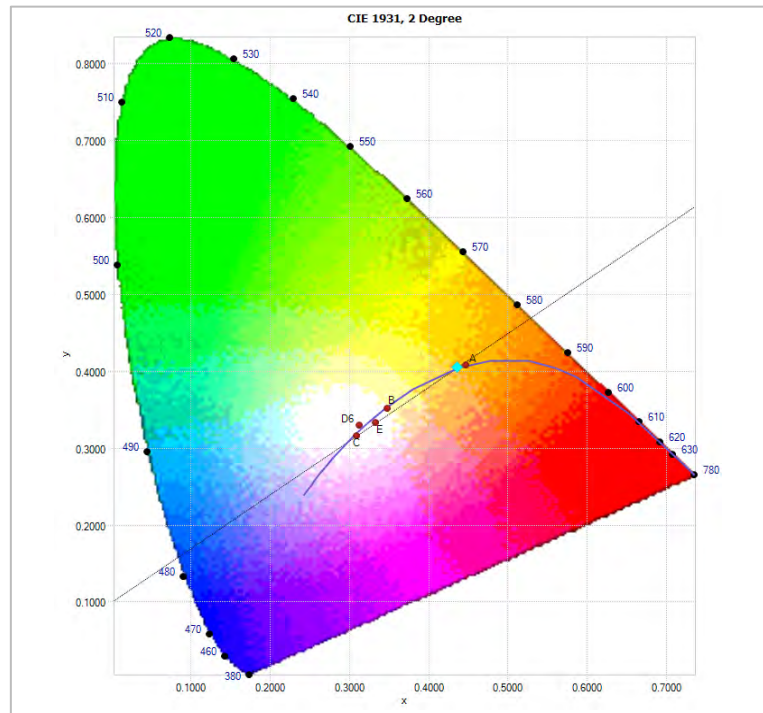
Programmed to 430mA

Efficacy: 84.4 LPW

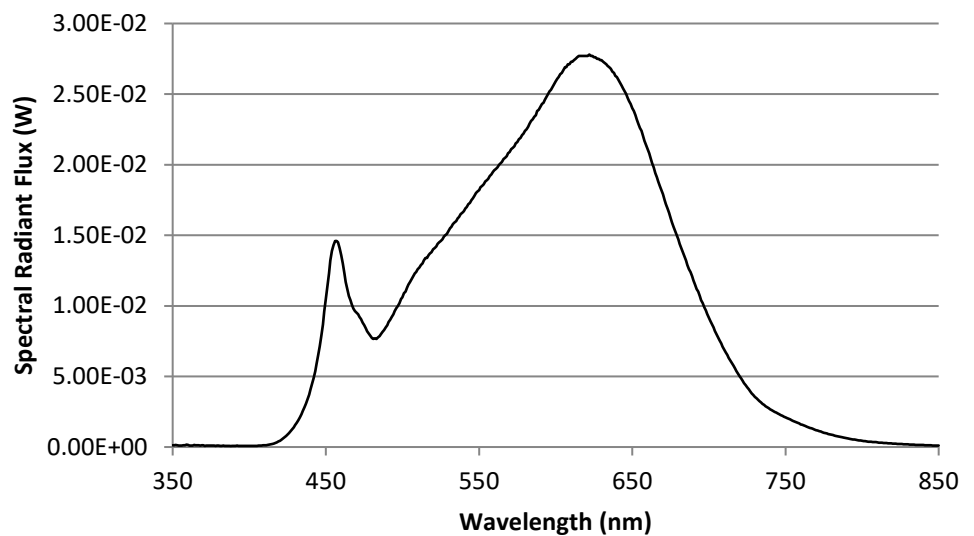
S/P Ratio: 1.4 LM'/LM

Spectral Results

Name	Value	Unit
Φ	4.90	watts
$\Phi(v)$	1410	lumens
$\Phi(v')$	2030	lm'
Chrom x	0.4361	
Chrom y	0.4051	
Chrom u	0.2496	
Chrom v	0.3478	
Duv	0.0004	
Chrom u'	0.2496	
Chrom v'	0.5217	
CCT	3019	K
Purity	52.5	%
λ (dom)	582.6	nm
FWHM	163.6	nm
λ (peak)	621.1	nm
λ (center)	600.9	nm
λ (centroid)	593.8	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.000534173	
Correlation	0.0054	
R1	93.2	
R2	97.4	
R3	98.9	
R4	91.6	
R5	92.5	
R6	96.3	
R7	91.7	
R8	82.3	
R9	61.5	
R10	92.6	
R11	92.1	
R12	79.9	
R13	94.4	
R14	99.4	



Spectral Distribution of Radiant Flux



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LUMINAIRE: 11in Square Edgelit Panel - Tooled Lens

LAMP CAT. NO.: 3528

LAMP: 84- Seoul 3000K LEDs

BALLAST: 1- Alpha - Programmed to 430mA

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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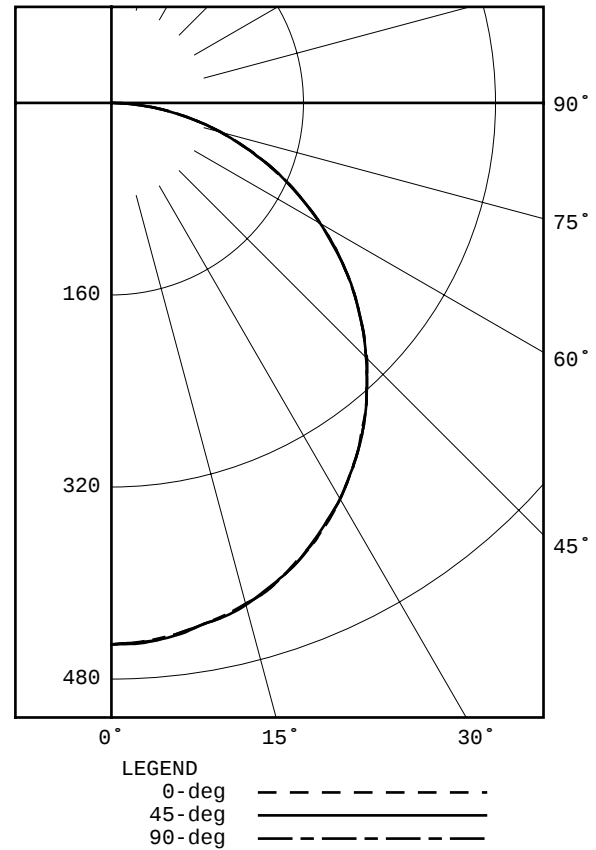
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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	FLUX
0	451	451	451	451	451	
5	449	449	449	449	448	43
15	432	432	433	432	432	122
25	402	402	401	401	402	185
35	357	357	357	358	357	223
45	301	301	300	301	300	232
55	236	236	236	236	236	211
65	166	166	165	166	166	164
75	95	95	94	95	94	100
85	27	27	26	27	26	30
90	1	0	0	0	0	
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 LUMENS	%FIXT
0- 30		350	26.7
0- 40		573	43.8
0- 60		1016	77.6
0- 90		1309	100.0
90-120		0	0.0
90-130		0	0.0
90-150		0	0.0
90-180		0	0.0
0-180		1310	100.0

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





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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 48.000 22.000

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	625.	623.	623.
55	604.	604.	604.
65	577.	573.	577.
75	539.	533.	533.
85	455.	438.	438.



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**CANDELA DISTRIBUTION
LATERAL ANGLE**

	0.0	22.5	45.0	67.5	90.0
0.0	451	451	451	451	451
5.0	449	449	449	449	448
10.0	441	441	441	441	441
15.0	432	432	433	432	432
20.0	419	419	419	419	419
25.0	402	402	401	401	402
30.0	381	381	381	381	381
35.0	357	357	357	358	357
40.0	330	330	330	330	330
45.0	301	301	300	301	300
50.0	269	270	269	270	269
55.0	236	236	236	236	236
60.0	201	201	201	201	201
65.0	166	166	165	166	166
70.0	130	129	129	129	129
75.0	95	95	94	95	94
80.0	60	60	59	60	60
85.0	27	27	26	27	26
90.0	1	0	0	0	0
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		11
5- 10		32
10- 15		52
15- 20		70
20- 25		86
25- 30		99
30- 35		109
35- 40		115
40- 45		117
45- 50		115
50- 55		110
55- 60		101
60- 65		89
65- 70		75
70- 75		58
75- 80		41
80- 85		24
85- 90		7
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		43
0- 20		165
0- 30		350
0- 40		573
0- 50		805
0- 60		1016
0- 70		1180
0- 80		1279
0- 90		1309
0-100		1310
0-110		1310
0-120		1310
0-130		1310
0-140		1310
0-150		1310
0-160		1310
0-170		1310
0-180		1310



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	106	101	97	93	97	94	91	93	90	88	89	87	85	83
2	98	90	83	77	96	88	82	76	84	79	74	81	77	73	78	74	71	69
3	90	79	70	64	87	77	69	63	74	68	62	71	66	61	69	64	60	58
4	82	70	61	54	80	68	60	53	66	59	53	63	57	52	61	56	51	49
5	75	62	53	46	73	61	52	46	59	51	46	57	50	45	55	49	45	42
6	69	56	47	40	68	55	46	40	53	45	40	51	45	39	50	44	39	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	35	33
8	60	46	38	32	58	46	37	32	44	37	31	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	28	41	33	28	40	33	28	39	32	28	26
10	52	39	31	26	51	39	31	26	38	31	26	37	30	26	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

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	10/31/2019
<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

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	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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