

Project Number
19.01763



HUBBELL
Lighting

Date
10/3/2019

Photometric Test Report

LAB 1
Sphere

Test Sample Description

Catalog Number: P810013-028-30
Description: 7.5" LED Flush Mount w/ Polycarbonate Refractor

Photometry

Test Methods: IES LM-46-04
IES LM-79-08 §10
Preburn Time: 0:05
Time To Stabilize: 0:51
Total Operating Time: 2:00

Input Voltage (Volts): 119.9
Input Current (Amps): 0.143
Input Wattage (Watts): 16.0
Ambient Temp (°C): 26.2
PF @ 120V: 0.936
THD @ 120V (%): 38.27

Sphere

Test Methods: IES LM-16-93
IES LM-79-08 §12.1
Preburn Time: 0:10
Time To Stabilize: 0:58
Total Operating Time: 1:40

Input Voltage (Volts): 120.1
Input Current (Amps): 0.139
Input Wattage (Watts): 15.5
Ambient Temp (°C): 24



Hubbell Lighting, Inc.

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

Checked (sphere): M.ELLMANN
Checked (photometry): D.ROBBINS
Approved: N. DeVOL



* This customer-provided information was not verified by the laboratory. Note that LED manufacturer and part # are unverifiable by the lab.

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Lamp Cat#: SAW9A32E-E1

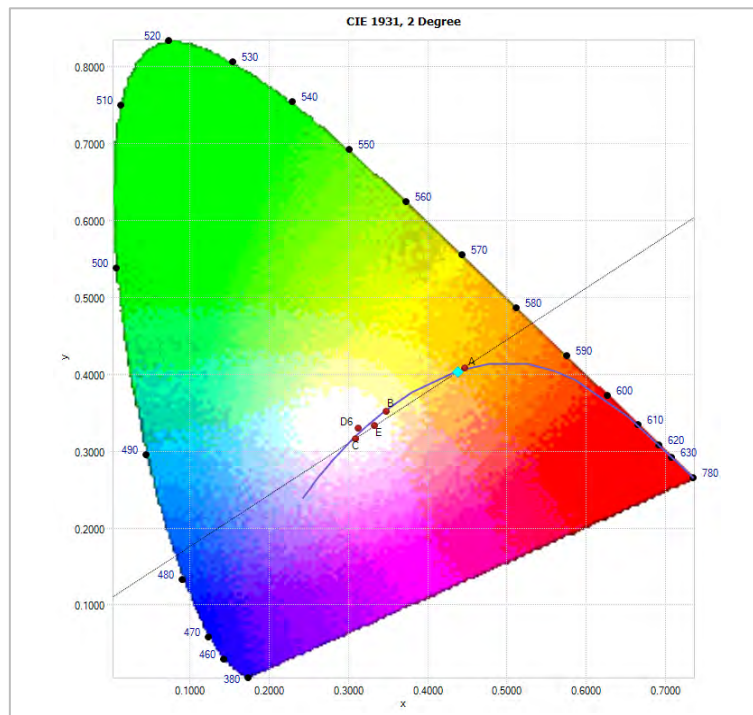
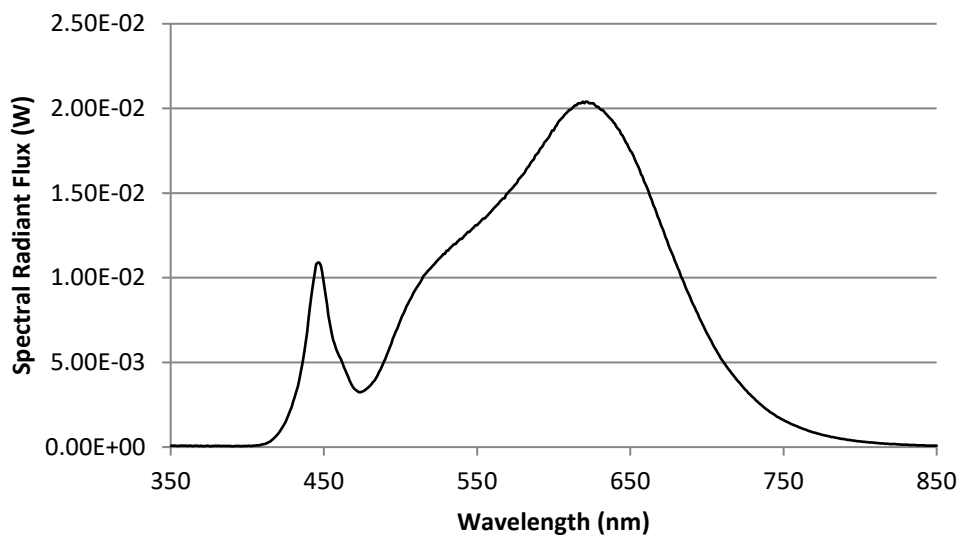
Lamp Desc: 28 - Seoul 3000K LEDs

Efficacy: 65.8 LPW

S/P Ratio: 1.4 LM'/LM

Spectral Results

Name	Value	Unit
Φ	3.56	watts
$\Phi(v)$	1020	lumens
$\Phi(v')$	1406	lm'
Chrom x	0.4376	
Chrom y	0.4034	
Chrom u	0.2513	
Chrom v	0.3475	
Duv	0.0005	
Chrom u'	0.2513	
Chrom v'	0.5212	
CCT	2980	K
Purity	52.4	%
λ (dom)	583.0	nm
FWHM	166.5	nm
λ (peak)	621.1	nm
λ (center)	599.5	nm
λ (centroid)	594.4	nm
SDCM	Cool White	
RA	92	
Corr. Coef.	0.000417398	
Correlation	0.0054	
R1	92.6	
R2	94.3	
R3	95.0	
R4	93.0	
R5	92.1	
R6	93.1	
R7	92.5	
R8	83.1	
R9	60.3	
R10	86.3	
R11	94.1	
R12	82.8	
R13	92.9	
R14	96.5	

**Spectral Distribution of Radiant Flux**

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PREPARED FOR: PROGRESS

CATALOG NUMBER: P810013-028-30

LUMINAIRE: 7.5" LED Flush Mount w/ Polycarbonate Refractor

LAMP CAT. NO.: SAW9A32E-E1

LAMP: 28- Seoul 3000K LEDs

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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CANDELA DISTRIBUTION

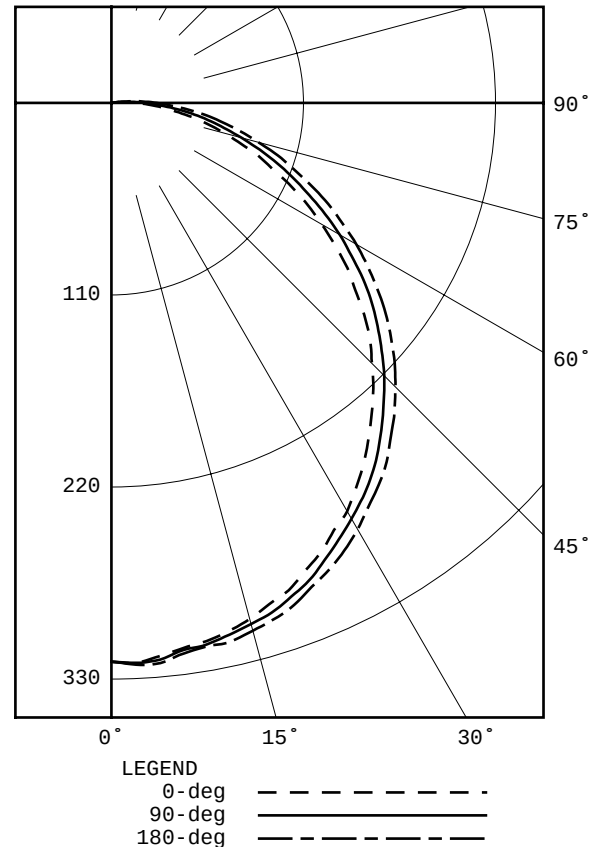
	0.0	45.0	90.0	135.0	180.0	FLUX
0	320	320	320	320	320	
5	318	318	320	321	322	30
15	306	306	309	312	313	87
25	284	284	289	292	295	133
35	252	253	260	264	267	162
45	211	214	221	227	230	170
55	165	168	176	183	186	157
65	114	117	125	133	137	124
75	67	70	77	84	87	82
85	29	31	36	42	44	40
90	14	16	20	24	26	
95	3	4	6	9	10	9
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	SUMMARY LUMENS	%FIXT
0- 30		251	25.2
0- 40		413	41.5
0- 60		740	74.4
0- 90		986	99.1
90-120		9	0.9
90-130		9	0.9
90-150		9	0.9
90-180		9	0.9
0-180		995	100.0

EFFICACY = 62.2 lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG 180-DEG
SPACING CRITERIA : 1.25 1.28 1.30
SHIELDING ANGLES : 90 90





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LUMINOUS DIAMETER: 5.250
HEIGHT OF SIDE : 0.500

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	19055.	19958.	20771.
55	17557.	18728.	19792.
65	15328.	16807.	18421.
75	12761.	14665.	16570.
85	9985.	12395.	15150.



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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	320	320	320	320	320	320	320	320	320
5.0	318	319	318	319	320	320	321	321	322
10.0	313	313	313	314	315	316	316	317	316
15.0	306	306	306	308	309	310	312	313	313
20.0	297	297	297	299	301	303	304	305	306
25.0	284	284	284	286	289	291	292	293	295
30.0	270	269	271	273	275	278	280	282	282
35.0	252	252	253	256	260	262	264	267	267
40.0	232	233	235	238	241	244	247	249	249
45.0	211	212	214	217	221	224	227	229	230
50.0	189	190	192	195	199	203	206	209	209
55.0	165	166	168	172	176	180	183	186	186
60.0	139	140	143	146	151	155	158	161	162
65.0	114	115	117	121	125	130	133	135	137
70.0	90	91	93	96	101	104	108	111	111
75.0	67	68	70	73	77	81	84	86	87
80.0	47	48	49	52	56	59	62	64	65
85.0	29	29	31	33	36	39	42	43	44
90.0	14	14	16	17	20	22	24	25	26
95.0	3	4	4	5	6	8	9	10	10
100.0	0	0	0	0	1	1	1	1	1
105.0	0	0	0	0	0	0	0	0	0
110.0	0	0	0	0	0	0	0	0	0
115.0	0	0	0	0	0	0	0	0	0
120.0	0	0	0	0	0	0	0	0	0
125.0	0	0	0	0	0	0	0	0	0
130.0	0	0	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0	0	0
140.0	0	0	0	0	0	0	0	0	0
145.0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0
155.0	0	0	0	0	0	0	0	0	0
160.0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0
170.0	0	0	0	0	0	0	0	0	0
175.0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		8
5- 10		23
10- 15		37
15- 20		50
20- 25		62
25- 30		71
30- 35		79
35- 40		84
40- 45		85
45- 50		85
50- 55		81
55- 60		75
60- 65		67
65- 70		57
70- 75		46
75- 80		35
80- 85		25
85- 90		15
90- 95		7
95-100		2
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		30
0- 20		118
0- 30		251
0- 40		413
0- 50		583
0- 60		740
0- 70		864
0- 80		946
0- 90		986
0-100		995
0-110		995
0-120		995
0-130		995
0-140		995
0-150		995
0-160		995
0-170		995
0-180		995



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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	101	101	101	99
1	107	102	97	93	105	100	95	92	95	92	88	91	88	86	87	85	83	81
2	97	88	81	75	94	86	80	74	83	77	72	79	74	70	76	72	69	66
3	88	77	69	62	86	76	68	61	72	66	60	70	64	59	67	62	58	55
4	81	68	59	52	78	67	58	52	64	57	51	62	55	50	59	54	49	47
5	74	61	52	45	72	60	51	44	57	50	44	55	49	43	53	47	43	40
6	68	55	46	39	66	54	45	39	52	44	38	50	43	38	48	42	37	35
7	63	50	41	34	62	49	40	34	47	39	34	45	39	33	44	38	33	31
8	59	45	36	30	57	44	36	30	43	35	30	42	35	30	40	34	30	28
9	55	41	33	27	54	41	33	27	40	32	27	38	32	27	37	31	27	25
10	52	38	30	25	50	38	30	25	37	29	25	36	29	24	35	29	24	22

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
10/31/2019

Goniophotometer Calibration

Calibration Lamp: GE 1000W, 120V, T6, CL (FEL)

Lamp Number: ITL78966-1000-66

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 23013.0 Lumens

Calibration Date: 08/20/2019

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
Goniophotometer	ITL/HLI LAB 1 - Test Distance: 31.74'	N/A	N/A
Power Analyzer	Yokogawa / WT 332	C2QA27071V	10/31/2019
Power Source	Voltage-Regulated House Power	N/A	N/A
Thermometer	National Instruments / USB-TC01	176F4E3	10/31/2019

3-Meter-Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10

Lamp Number: SCL-1400-K136

Calibration Current: 2.679 Amps

Total Luminous Flux: 1429 Lumens

Test Equipment Used - Color & SPD; THD & Power Factor

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
3-Meter Sphere	Labsphere / LMS-3M	N/A	Calibration Checked Daily
Thermometer	National Instruments / USB TC01	1912751	10/31/2019
Power Analyzer	Yokogawa / WT332	C2QA27074V	10/31/2019
Power Supply	Chroma / 61602	616020002113	N/A
Aux Lamp Supply	GW Instek / PSU 150-10	GER221028	N/A
Cal Lamp Supply	Labsphere / LPS-150-0268	1218148505	N/A
Spectrometer	Labsphere / CDS 1100	0624117792	N/A

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