

Project Number
17.02156



HUBBELL
Lighting

Date
8/9/2017

LAB 6
Sphere

Test Sample Description

Catalog Number: PCINS-LED-4-40K
Description: 4' LED Strip

Photometry

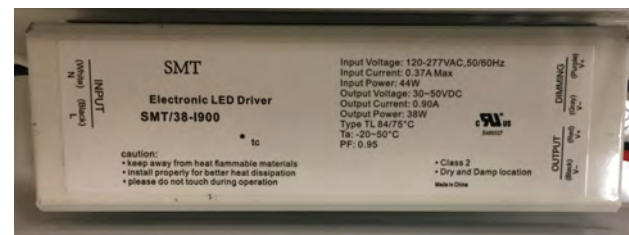
Test Method: IES LM-79-08 § 10
Preburn Time: 0:30
Time To Stabilize: 0:45
Total Operating Time: 2:35

Input Voltage (Volts): 119.8
Input Current (Amps): 0.332
Input Wattage (Watts): 39.5
Ambient Temp (°C): 24.1
PF @277V: 0.954
THD @ 277V (%): 12.85

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 3:00
Time To Stabilize: 2:03
Total Operating Time: 5:03

Input Voltage (Volts): 120.0
Input Current (Amps): 0.332
Input Wattage (Watts): 39.5
Ambient Temp (°C): 24.0.



Hubbell Lighting, Inc.

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

Checked (sphere): B. LEE
Checked (photometry): M. ELLMANN
Approved: P. McCARTHY

NVLAP
TESTING
NVLAP LAB CODE: 201003-0

This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.



Lamp Cat#: 3528

Lamp Desc: 120 - Seoul 4000K LEDs

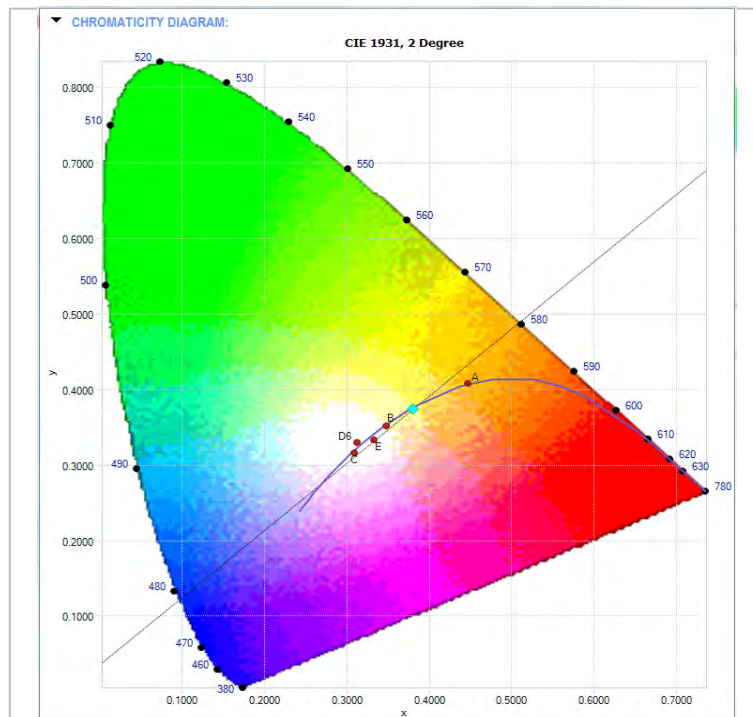
Driver Desc: 1 - Arcata Electronics SMT38-I900

Efficacy: 114.3 LPW

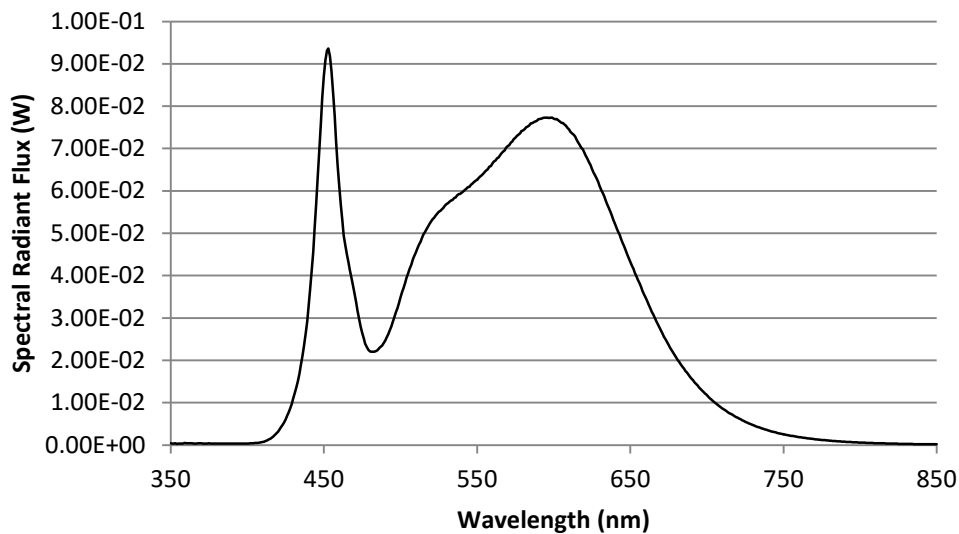
S/P Ratio: 1.7 LM/LM

Spectral Results

Name	Value	Unit
Φ	14.01	watts
$\Phi(v)$	4516	lumens
$\Phi(v')$	7662	lm'
Chrom x	0.3799	
Chrom y	0.3747	
Chrom u	0.2256	
Chrom v	0.3337	
Duv	0.0008	
Chrom u'	0.2256	
Chrom v'	0.5006	
CCT	3996	K
Purity	26.5	%
λ (dom)	579.5	nm
FWHM	20.9	nm
λ (peak)	452.7	nm
λ (center)	453.7	nm
λ (centroid)	565.4	nm
SDCM	Cool White	
RA	85	
Corr. Coef.	0.000824185	
Correlation	0.0054	
R1	83.5	
R2	90.3	
R3	94.4	
R4	83.4	
R5	83.0	
R6	85.7	
R7	87.3	
R8	68.4	
R9	19.0	
R10	76.0	
R11	82.3	
R12	61.2	
R13	85.3	
R14	96.9	



Spectral Distribution of Radiant Flux



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CATALOG NUMBER: PCINS-LED-4-40K

LUMINAIRE: 4' LED Strip

LAMP CAT. NO.: 3528

LAMP: 120- Seoul 4000K LEDs

BALLAST CATALOG NUMBER: SMT38-I900

BALLAST: 1- Arcata Electronics

REFRACTOR: Acrylic

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED



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CANDELA DISTRIBUTION

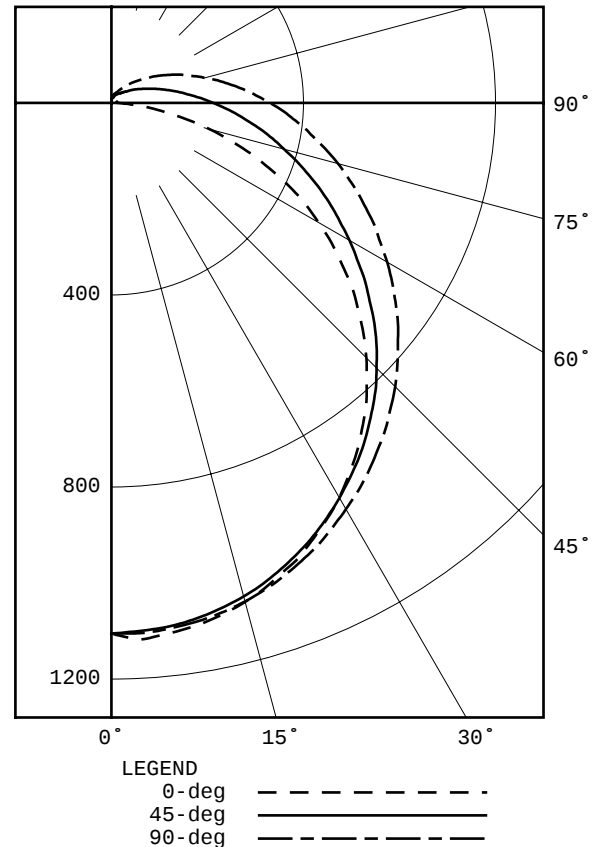
	0.0	22.5	45.0	67.5	90.0
0	1105	1105	1105	1105	1105
5	1114	1098	1099	1097	1104
15	1076	1061	1064	1065	1075
25	999	988	995	1005	1017
35	890	881	900	919	935
45	751	748	781	814	836
55	586	593	644	699	722
65	407	428	504	576	605
75	212	268	372	457	489
85	47	140	261	350	380
90	13	96	212	299	330
95	12	65	170	253	284
105	13	36	109	177	202
115	14	24	69	119	139
125	15	20	44	78	92
135	15	17	30	49	58
145	17	16	23	31	37
155	18	14	17	21	22
165	18	14	11	14	14
175	18	11	7	8	8
180	8	8	8	8	8

FLUX

105
301
461
565
605
579
499
383
265
175
115
72
44
26
15
9
4
1

ZONAL ZONE	LUMEN LUMENS	SUMMARY LUMENS	%FIXT
0- 30		866	20.5
0- 40		1432	33.9
0- 60		2616	61.9
0- 90		3763	89.1
90-120		362	8.6
90-130		406	9.6
90-150		448	10.6
90-180		461	10.9
0-180		4224	100.0

EFFICACY = 106.9 lm/W
CIE TYPE - SEMI-DIRECT
PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.27 1.32





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**CANDELA DISTRIBUTION
LATERAL ANGLE**

	0.0	22.5	45.0	67.5	90.0
0.0	1105	1105	1105	1105	1105
5.0	1114	1098	1099	1097	1104
10.0	1100	1084	1086	1085	1093
15.0	1076	1061	1064	1065	1075
20.0	1041	1028	1033	1039	1049
25.0	999	988	995	1005	1017
30.0	949	938	950	964	977
35.0	890	881	900	919	935
40.0	825	818	843	868	888
45.0	751	748	781	814	836
50.0	671	673	715	758	779
55.0	586	593	644	699	722
60.0	498	511	573	638	663
65.0	407	428	504	576	605
70.0	309	346	437	516	546
75.0	212	268	372	457	489
80.0	119	197	315	401	431
85.0	47	140	261	350	380
90.0	13	96	212	299	330
95.0	12	65	170	253	284
100.0	13	47	137	212	241
105.0	13	36	109	177	202
110.0	13	29	86	146	168
115.0	14	24	69	119	139
120.0	14	22	56	97	113
125.0	15	20	44	78	92
130.0	15	18	36	62	73
135.0	15	17	30	49	58
140.0	16	16	25	38	46
145.0	17	16	23	31	37
150.0	17	15	20	26	28
155.0	18	14	17	21	22
160.0	18	14	14	18	18
165.0	18	14	11	14	14
170.0	18	12	10	10	10
175.0	18	11	7	8	8
180.0	8	8	8	8	8



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		26
5- 10		78
10- 15		128
15- 20		173
20- 25		213
25- 30		247
30- 35		273
35- 40		292
40- 45		302
45- 50		303
50- 55		297
55- 60		282
60- 65		262
65- 70		237
70- 75		207
75- 80		176
80- 85		146
85- 90		119
90- 95		97
95-100		79
100-105		64
105-110		51
110-115		40
115-120		32
120-125		25
125-130		19
130-135		15
135-140		11
140-145		9
145-150		7
150-155		5
155-160		4
160-165		2
165-170		2
170-175		1
175-180		0

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		105
10- 20		301
20- 30		461
30- 40		565
40- 50		605
50- 60		579
60- 70		499
70- 80		383
80- 90		265
90-100		175
100-110		115
110-120		72
120-130		44
130-140		26
140-150		15
150-160		9
160-170		4
170-180		1



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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	116	116	116	116	112	112	112	112	105	105	105	98	98	98	92	92	92	89
1	104	98	93	88	100	95	90	86	88	85	81	83	80	77	77	75	73	70
2	94	84	77	70	90	81	75	69	76	70	65	71	66	62	67	63	59	56
3	85	73	65	57	81	71	63	56	66	59	54	62	56	52	58	53	49	46
4	77	65	55	48	74	63	54	47	59	51	45	55	49	44	52	46	42	39
5	71	57	48	41	68	56	47	40	52	45	39	49	43	37	46	41	36	34
6	65	52	42	36	63	50	41	35	47	39	34	44	38	33	42	36	31	29
7	61	47	38	31	58	45	37	31	43	35	30	40	34	29	38	32	28	26
8	56	42	34	28	54	41	33	27	39	32	26	37	30	26	35	29	25	23
9	53	39	30	25	51	38	30	24	36	29	24	34	28	23	32	26	22	20
10	49	36	28	22	47	35	27	22	33	26	21	31	25	21	30	24	20	18

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: 09/2/2016

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL/HLI LAB 6 - Test Distance: 31.3'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27076V	11/2/2017
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	1912745	11/7/2017

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	Calibrated Weekly
<i>Thermometer</i>	National Instruments / USB TC01	1912751	11/2/2017
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	11/1/2017
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	031159372	10/31/2017
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	12/1/2017
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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