

Project Number
18.00738



HUBBELL
Lighting

Date
5/1/2018

Lab 1
Sphere

Test Sample Description

Catalog Number: P7258-XXX30K9

Description: 4' Linear LED - White Painted Steel Pan w/ Acrylic Diffuser and Decorative Iron End Caps

Photometry

IES LM-41-14

Test Method: IES LM-79-08 §10

Preburn Time: 0:10

Time To Stabilize: 0:45

Total Operating Time: 1:52

Input Voltage (Volts): 120.0

Input Current (Amps): 0.451

Input Wattage (Watts): 51.6

Ambient Temp (°C): 26.0

Sphere

IES LM-16-93

Test Method: IES LM-79-08 §12.1

Preburn Time: 0:10

Time To Stabilize: 1:08

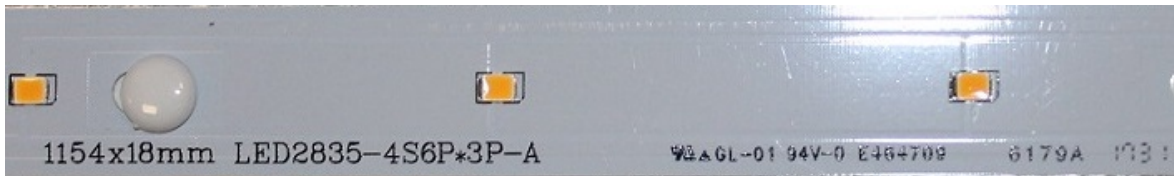
Total Operating Time: 1:18

Input Voltage (Volts): 120.0

Input Current (Amps): 0.449

Input Wattage (Watts): 51.4

Ambient Temp (°C): 24.4



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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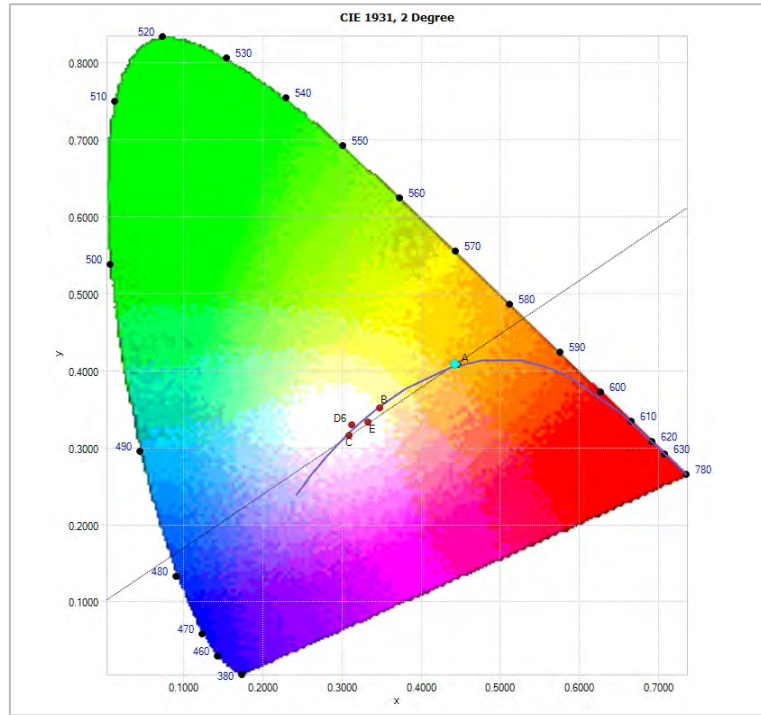


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Lamp Cat#: 2835
Lamp Desc: 72 - Seoul 3000K LEDs
Driver Desc: 1 - CDL CDL050W-1200-42L
Programmed to 1200mA

Efficacy: 74.7 LPW S/P Ratio: 1.4 LM/LM

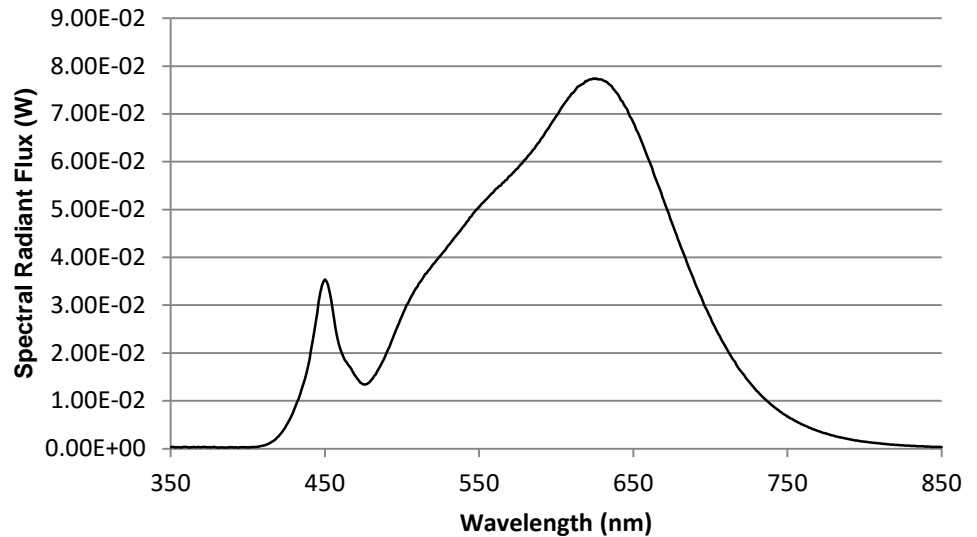
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	13.53	watts
Φ(v)	3841	lumens
Φ(v')	5221	lm'
Chrom x	0.4429	
Chrom y	0.4094	
Chrom u	0.2521	
Chrom v	0.3496	
Duv	0.0011	
Chrom u'	0.2521	
Chrom v'	0.5243	
CCT	2943	K
Purity	55.8	%
λ (dom)	582.6	nm
FWHM	164.6	nm
λ (peak)	624.6	nm
λ (center)	602.9	nm
λ (centroid)	597.5	nm
SDCM	Cool White	
RA	92	
Corr. Coef.	0.001329726	
Correlation	0.0054	
R1	92.3	
R2	94.3	
R3	95.0	
R4	93.2	
R5	91.6	
R6	92.7	
R7	94.0	
R8	84.5	
R9	63.0	
R10	85.9	
R11	93.6	
R12	80.2	
R13	92.6	
R14	96.5	

Spectral Distribution of Radiant Flux





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LUMINAIRE: 4' Linear LED - White Painted Steel Pan w/ Acrylic Diffuser
and Decorative Iron End Caps

LAMP CAT. NO.: 2835

LAMP: 72- Seoul 3000K LEDs

BALLAST CATALOG NUMBER: CDL050W-1200-42L

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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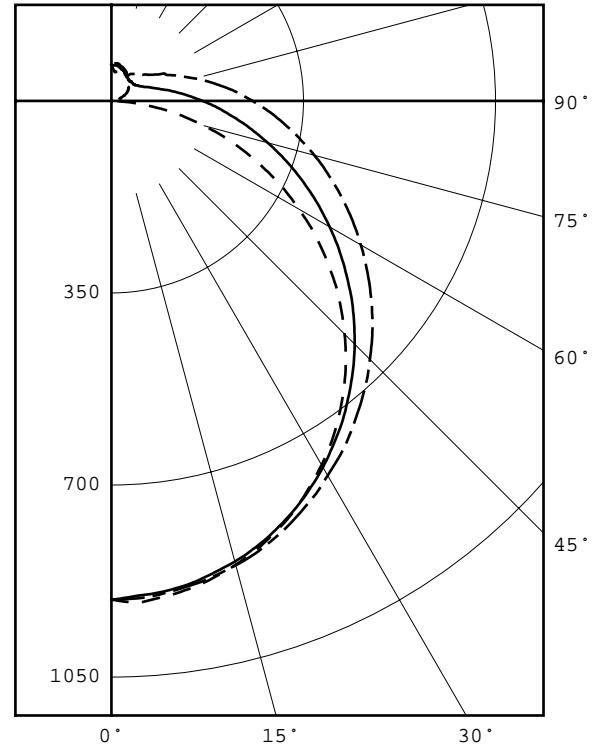
CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	FLUX
0	909	909	909	909	909	
5	911	905	901	905	905	86
15	875	871	869	876	876	246
25	810	807	810	820	823	375
35	717	716	727	745	752	457
45	601	604	627	655	666	486
55	467	477	516	556	573	463
65	322	343	403	455	477	397
75	175	215	295	358	383	304
85	39	112	204	271	297	207
90	0	76	166	232	257	
95	3	51	134	197	222	136
105	16	30	87	138	158	91
115	28	31	62	99	112	65
125	38	36	51	73	83	50
135	44	44	50	62	68	41
145	53	51	52	58	60	34
155	61	58	57	56	56	26
165	66	65	62	56	57	17
175	69	69	65	56	55	6
180	66	66	66	66	66	

ZONAL LUMEN SUMMARY

ZONE	LUMEN LUMENS	%FIXT
0- 30	707	20.3
0- 40	1164	33.4
0- 60	2113	60.6
0- 90	3021	86.6
90-120	292	8.4
90-130	343	9.8
90-150	417	12.0
90-180	467	13.4
0-180	3488	100.0

EFFICACY = 67.6 lm/W
CIE TYPE - SEMI-DIRECT
PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.25 1.29
SHIELDING ANGLES : 90 90



LEGEND
0-deg - - - - -
45-deg _____
90-deg - . - . - .



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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 48.000 10.500
HEIGHT OF SIDE : 3.500 3.500

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE	AVERAGE	AVERAGE	AVERAGE
IN DEG	0-DEG	45-DEG	90-DEG
45	2436.	2118.	2172.
55	2268.	1962.	2081.
65	2026.	1815.	2024.
75	1635.	1692.	2028.
85	751.	1681.	2179.



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CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	909	909	909	909	909
5.0	911	905	901	905	905
10.0	897	892	889	893	893
15.0	875	871	869	876	876
20.0	846	842	843	851	853
25.0	810	807	810	820	823
30.0	766	765	771	785	788
35.0	717	716	727	745	752
40.0	662	663	678	701	710
45.0	601	604	627	655	666
50.0	537	541	573	606	621
55.0	467	477	516	556	573
60.0	394	409	459	505	525
65.0	322	343	403	455	477
70.0	248	277	348	406	429
75.0	175	215	295	358	383
80.0	105	159	247	313	339
85.0	39	112	204	271	297
90.0	0	76	166	232	257
95.0	3	51	134	197	222
100.0	9	36	108	165	188
105.0	16	30	87	138	158
110.0	21	28	73	114	132
115.0	28	31	62	99	112
120.0	34	35	56	84	96
125.0	38	36	51	73	83
130.0	40	40	50	66	74
135.0	44	44	50	62	68
140.0	49	47	50	59	64
145.0	53	51	52	58	60
150.0	57	54	53	56	55
155.0	61	58	57	56	56
160.0	64	61	60	55	57
165.0	66	65	62	56	57
170.0	69	68	65	57	54
175.0	69	69	65	56	55
180.0	66	66	66	66	66



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		22
5- 10		64
10- 15		105
15- 20		142
20- 25		174
25- 30		201
30- 35		222
35- 40		236
40- 45		243
45- 50		243
50- 55		237
55- 60		225
60- 65		209
65- 70		188
70- 75		164
75- 80		139
80- 85		115
85- 90		93
90- 95		75
95-100		61
100-105		50
105-110		41
110-115		35
115-120		30
120-125		27
125-130		24
130-135		22
135-140		20
140-145		18
145-150		16
150-155		14
155-160		12
160-165		10
165-170		7
170-175		4
175-180		2

10-DEGREE ZONAL LUMEN SUMMARY		
0- 10		86
0- 20		332
0- 30		707
0- 40		1164
0- 50		1651
0- 60		2113
0- 70		2510
0- 80		2814
0- 90		3021
0-100		3157
0-110		3248
0-120		3313
0-130		3364
0-140		3405
0-150		3438
0-160		3465
0-170		3482
0-180		3488



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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	116	116	116	116	112	112	112	112	104	104	104	96	96	96	90	90	90	87
1	104	98	93	88	99	94	90	86	87	84	80	81	78	76	76	73	71	68
2	93	84	77	70	89	81	74	68	75	70	65	70	65	61	65	61	58	55
3	85	73	65	58	81	71	63	56	66	59	54	61	56	51	57	52	48	45
4	77	65	55	48	74	62	54	47	58	51	45	54	48	43	50	45	41	38
5	71	57	48	41	68	56	47	40	52	44	39	48	42	37	45	40	35	33
6	65	52	42	36	62	50	41	35	47	39	34	44	37	32	41	35	31	29
7	60	47	38	31	58	45	37	31	42	35	30	40	33	29	37	32	27	25
8	56	42	34	28	54	41	33	27	39	31	26	36	30	25	34	29	24	22
9	52	39	30	25	50	38	30	24	36	29	24	34	27	23	32	26	22	20
10	49	36	28	22	47	35	27	22	33	26	21	31	25	21	29	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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5/1/2018

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	10/25/2018
<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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