

Project Number
17.00398



Date
2/13/2017

LAB 6
Sphere

Test Sample Description

Catalog Number: P7249-0930K9
Description: 10" LED Flush Mount

Photometry

Test Method: IES LM-79-08 § 10
Preburn Time: 1:22
Time To Stabilize: 0:48
Total Operating Time: 2:45

Input Voltage (Volts): 120.1
Input Current (Amps): 0.181
Input Wattage (Watts): 21.7
Ambient Temp (°C): 24.5
PF @ 120V: 0.998

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 10:00
Time To Stabilize: 0:58
Total Operating Time: 10:58

Input Voltage (Volts): 120.0
Input Current (Amps): 0.181
Input Wattage (Watts): 21.7
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: D. BLACK



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#: LEMWS36X90LZ3A00

Lamp Desc: 18 - LG 3000K LEDs

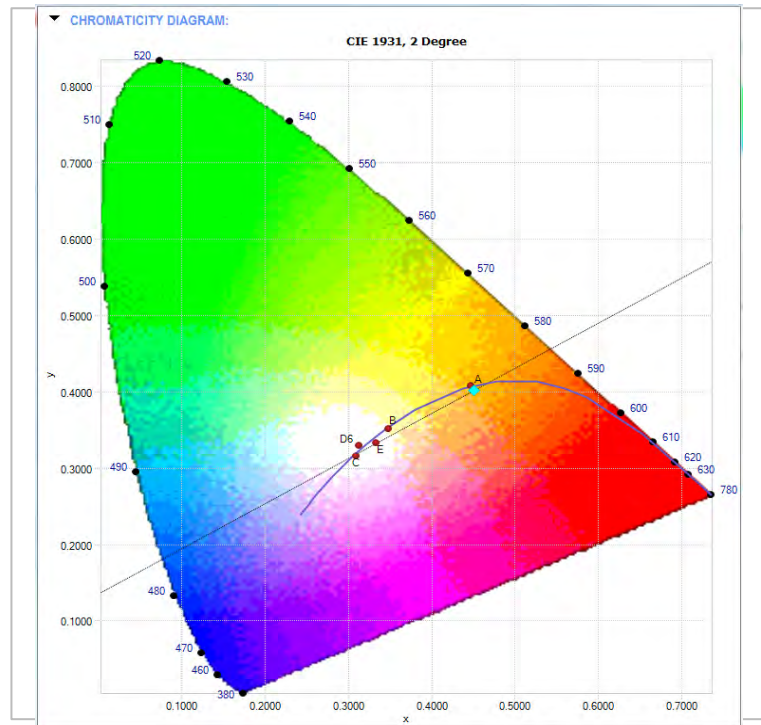
Driver Desc: 1 - Espen VEL19048120HDA-1

Efficacy: 51.3 LPW

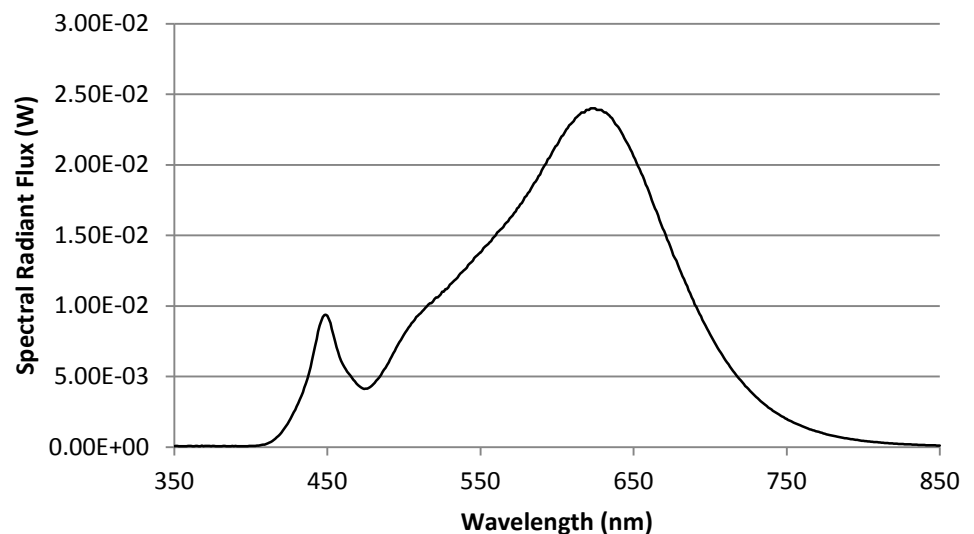
S/P Ratio: 1.3 LM/LM

Spectral Results

Name	Value	Unit
Φ	3.99	watts
$\Phi(v)$	1113	lumens
$\Phi(v')$	1470	lm'
Chrom x	0.4507	
Chrom y	0.4027	
Chrom u	0.2601	
Chrom v	0.3486	
Duv	0.0023	
Chrom u'	0.2601	
Chrom v'	0.5229	
CCT	2768	K
Purity	56.2	%
λ (dom)	584.6	nm
FWHM	147.9	nm
λ (peak)	623.4	nm
λ (center)	608.5	nm
λ (centroid)	598.7	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.002149049	
Correlation	0.0054	
R1	93.6	
R2	96.7	
R3	98.0	
R4	93.3	
R5	93.7	
R6	96.4	
R7	91.3	
R8	82.0	
R9	61.2	
R10	91.8	
R11	94.6	
R12	90.4	
R13	94.5	
R14	98.4	



Spectral Distribution of Radiant Flux





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PREPARED FOR: PROGRESS

CATALOG NUMBER: P7249-0930K9

LUMINAIRE: 10" LED Flush Mount

LAMP CAT. NO.: LEMWS36X90LZ3A00

LAMP: 18-3000K LG LEDs

BALLAST CATALOG NUMBER: VEL19048120HDA-1

BALLAST: 1-Espen

REFRACTOR: Acrylic

MOUNTING: Ceiling

NOTE:: NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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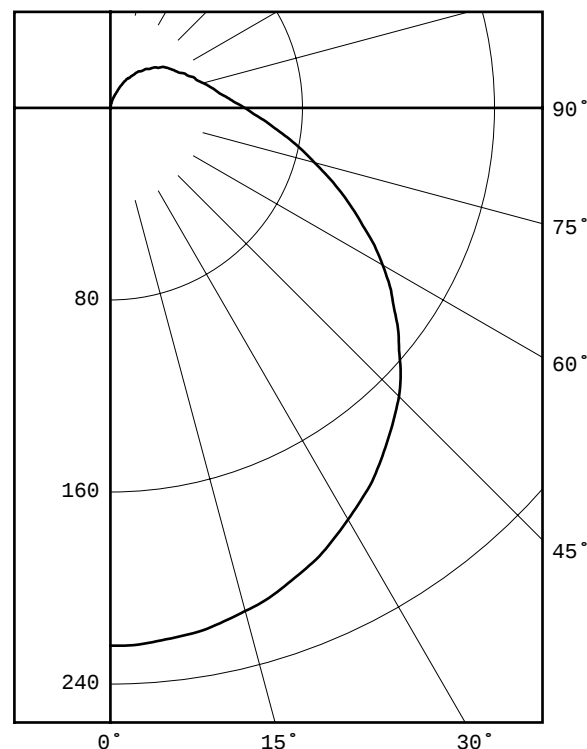
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DEG	CANDELA	LUMENS
0	224	
5	223	21
15	217	61
25	206	95
35	190	119
45	170	131
55	144	129
65	116	115
75	88	94
85	65	71
90	56	
95	49	54
105	40	42
115	34	34
125	29	26
135	23	18
145	17	11
155	10	5
165	4	1
175	1	0
180	0	

ZONAL ZONE	LUMEN	SUMMARY LUMENS	%FIXT
0- 30		178	17.3
0- 40		296	28.9
0- 60		556	54.2
0- 90		836	81.4
90-120		130	12.6
90-130		156	15.2
90-150		185	18.0
90-180		191	18.6
0-180		1027	100.0

EFFICACY = 47.3 lm/W
CIE TYPE - SEMI-DIRECT
LUMINAIRE SPACING CRITERION = 1.32





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LUMINOUS DIAMETER: 9.000
HEIGHT OF SIDE : 3.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	4112.
55	3808.
65	3501.
75	3206.
85	3106.



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CANDELA DISTRIBUTION

0.0	224
5.0	223
10.0	221
15.0	217
20.0	212
25.0	206
30.0	198
35.0	190
40.0	180
45.0	170
50.0	157
55.0	144
60.0	131
65.0	116
70.0	102
75.0	88
80.0	76
85.0	65
90.0	56
95.0	49
100.0	44
105.0	40
110.0	37
115.0	34
120.0	31
125.0	29
130.0	26
135.0	23
140.0	20
145.0	17
150.0	14
155.0	10
160.0	6
165.0	4
170.0	2
175.0	1
180.0	0



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		5
5- 10		16
10- 15		26
15- 20		35
20- 25		44
25- 30		51
30- 35		57
35- 40		62
40- 45		65
45- 50		66
50- 55		66
55- 60		64
60- 65		60
65- 70		55
70- 75		50
75- 80		44
80- 85		38
85- 90		33
90- 95		29
95-100		25
100-105		22
105-110		20
110-115		18
115-120		16
120-125		14
125-130		12
130-135		10
135-140		8
140-145		6
145-150		4
150-155		3
155-160		2
160-165		1
165-170		0
170-175		0
175-180		0

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		21
10- 20		61
20- 30		95
30- 40		119
40- 50		131
50- 60		129
60- 70		115
70- 80		94
80- 90		71
90-100		54
100-110		42
110-120		34
120-130		26
130-140		18
140-150		11
150-160		5
160-170		1
170-180		0



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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	115	115	115	115	110	110	110	110	101	110	110	93	93	93	85	85	85	81
1	102	96	91	86	97	92	87	83	84	80	77	77	74	71	70	68	66	62
2	91	82	74	68	87	79	72	66	72	66	61	66	61	57	60	56	53	50
3	83	71	62	55	79	68	60	53	63	56	50	57	52	47	52	48	44	41
4	75	63	53	46	72	60	51	45	55	48	42	50	44	40	46	41	37	34
5	69	56	46	39	66	53	45	38	49	42	36	45	39	34	41	36	32	29
6	64	50	40	34	60	48	39	33	44	37	31	41	34	29	37	32	28	25
7	59	45	36	29	56	43	35	29	40	33	27	37	30	26	34	29	24	22
8	55	41	32	26	52	39	31	25	36	29	24	34	27	23	31	26	22	19
9	51	37	29	23	48	36	28	23	33	26	22	31	25	20	29	23	19	17
10	48	34	26	21	45	33	25	20	31	24	19	29	23	19	27	21	18	16

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: 09/02/2016

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	11/30/7136	11/2/2017

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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