

Project Number  
18.00021



Date  
1/5/2018

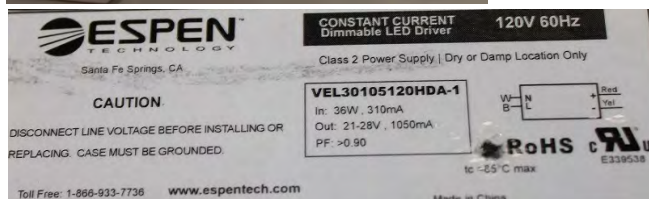
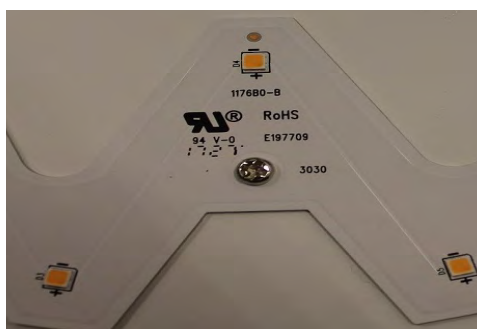
Lab 1  
Sphere

### Test Sample Description

Catalog Number: P350078-xxx-30  
Description: 18" Maier LED C-T-C w/ Etched Opal Acrylic Diffuser

**Photometry**  
Test Method: IES LM-46-04  
IES LM-79-08 § 10  
Preburn Time: 00:10  
Time To Stabilize: 0:45  
Total Operating Time: 2:05  
Input Voltage (Volts): 120.1  
Input Current (Amps): 0.254  
Input Wattage (Watts): 30.4  
Ambient Temp (°C): 26.0

**Sphere**  
Test Method: IES LM-16-93  
IES LM-79-08 § 9.1 & 12.1  
Preburn Time: 2:00  
Time To Stabilize: 0:58  
Total Operating Time: 2:58  
Input Voltage (Volts): 120.0  
Input Current (Amps): 0.254  
Input Wattage (Watts): 30.3  
Ambient Temp (°C): 24.0



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Checked (sphere) : B. LEE  
Checked (photometry) : D. ROBBINS  
Approved: P. McCARTHY



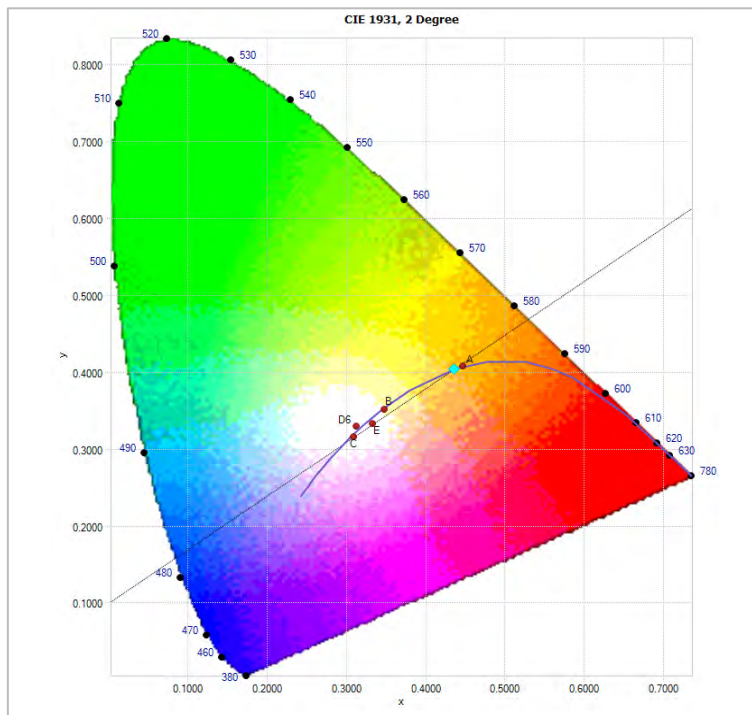
This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.



Lamp Cat#: LEMWS36X90LZ3A00  
 Lamp Desc: 28 - LG 3000K LEDs  
 Driver Desc: 1 - ESPEN VEL30105120HDA-1  
 Programmed to 1050mA

Efficacy: 70.0 LPW S/P Ratio: 1.4 LM/LM

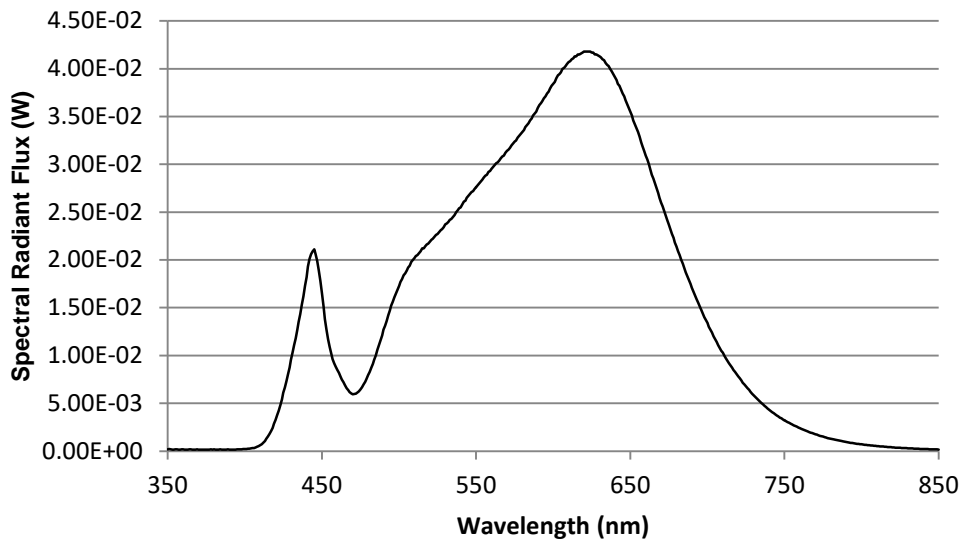
**Chromaticity Diagram**



**Spectral Results**

Name	Value	Unit
$\Phi$	7.36	watts
$\Phi(v)$	2120	lumens
$\Phi(v')$	2958	lm'
Chrom x	0.4355	
Chrom y	0.4046	
Chrom u	0.2494	
Chrom v	0.3476	
Duv	0.0003	
Chrom u'	0.2494	
Chrom v'	0.5214	
CCT	3026	K
Purity	52.2	%
$\lambda$ (dom)	582.6	nm
FWHM	167.1	nm
$\lambda$ (peak)	621.4	nm
$\lambda$ (center)	597.5	nm
$\lambda$ (centroid)	592.3	nm
SDCM	Cool White	
RA	92	
Corr. Coef.	0.00043085	
Correlation	0.0054	
R1	92.1	
R2	93.9	
R3	95.1	
R4	92.9	
R5	91.8	
R6	93.0	
R7	92.3	
R8	82.9	
R9	59.4	
R10	85.8	
R11	94.5	
R12	85.2	
R13	92.2	
R14	96.7	

**Spectral Distribution of Radiant Flux**



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**ISSUE DATE:** 01/04/18

**PREPARED FOR:** PROGRESS

**CATALOG NUMBER:** P350078-xxx-30

**LUMINAIRE:** 18" Maier LED C-T-C w/ Etched Opal Acrylic Diffuser

**LAMP CAT. NO.:** LEMWS36X90LZ3A00

**LAMP:** 28- LG 3000K LEDs

**BALLAST CATALOG NUMBER:** VEL30105120HDA-1

**BALLAST:** 1- ESPEN

**MOUNTING:** Ceiling

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



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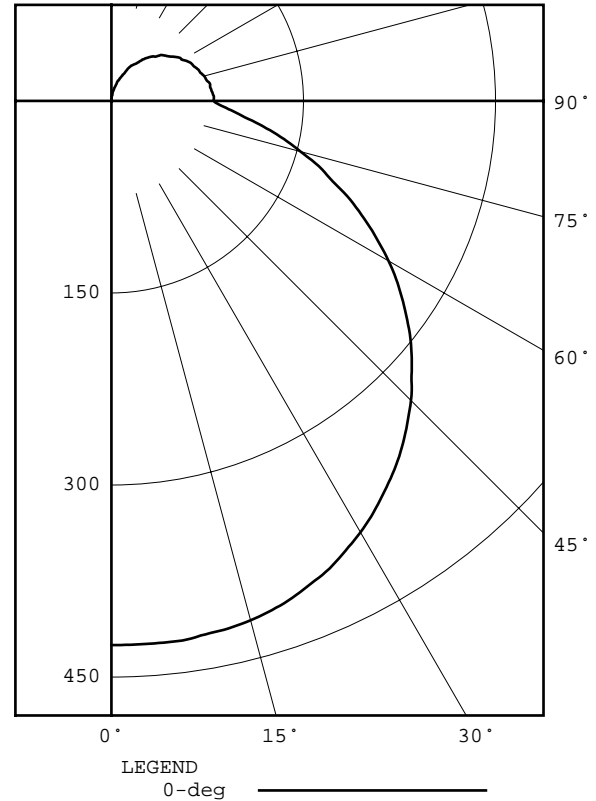
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DEG	CANDELA	LUMENS
0	425	
5	425	41
15	420	119
25	403	186
35	372	233
45	331	255
55	279	250
65	218	216
75	153	162
85	96	107
90	80	
95	79	86
105	75	79
115	69	68
125	60	54
135	49	39
145	37	24
155	24	12
165	12	4
175	4	0
180	0	

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	345	17.8
0- 40	578	29.9
0- 60	1083	56.0
0- 90	1568	81.1
90-120	233	12.1
90-130	287	14.9
90-150	349	18.1
90-180	365	18.9
0-180	1933	100.0

EFFICACY = 63.6 lm/W  
CIE TYPE - SEMI-DIRECT  
SPACING CRITERION: 1.36  
PLANE : 0-DEG 90-DEG  
SHIELDING ANGLES : 90 90





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LUMINOUS DIAMETER: 18.000  
HEIGHT OF SIDE : 4.000

LUMINANCE DATA IN CANDELA/SQ M  
ANGLE AVERAGE  
IN DEG

45	2222.
55	2110.
65	1955.
75	1751.
85	1585.



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CANDELA DISTRIBUTION

0.0	425
5.0	425
10.0	423
15.0	420
20.0	413
25.0	403
30.0	389
35.0	372
40.0	353
45.0	331
50.0	306
55.0	279
60.0	250
65.0	218
70.0	184
75.0	153
80.0	123
85.0	96
90.0	80
95.0	79
100.0	78
105.0	75
110.0	72
115.0	69
120.0	64
125.0	60
130.0	55
135.0	49
140.0	44
145.0	37
150.0	32
155.0	24
160.0	18
165.0	12
170.0	8
175.0	4
180.0	0



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		10
5- 10		30
10- 15		50
15- 20		69
20- 25		86
25- 30		100
30- 35		112
35- 40		121
40- 45		127
45- 50		129
50- 55		127
55- 60		122
60- 65		114
65- 70		102
70- 75		88
75- 80		74
80- 85		59
85- 90		48
90- 95		44
95-100		43
100-105		41
105-110		38
110-115		36
115-120		32
120-125		29
125-130		25
130-135		21
135-140		17
140-145		14
145-150		10
150-155		7
155-160		4
160-165		3
165-170		1
170-175		0
175-180		0

10-DEGREE ZONAL LUMEN SUMMARY		
0- 10		41
0- 20		159
0- 30		345
0- 40		578
0- 50		833
0- 60		1083
0- 70		1299
0- 80		1461
0- 90		1568
0-100		1654
0-110		1733
0-120		1801
0-130		1855
0-140		1893
0-150		1917
0-160		1929
0-170		1932
0-180		1933



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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	115	115	115	115	115	110	110	110	110	110	101	101	101	92	92	92	85	85	85	81
1	102	97	92	87	87	98	93	88	84	84	85	81	78	78	75	72	71	69	67	63
2	92	83	76	69	69	88	80	73	67	67	73	67	63	67	62	58	61	57	54	51
3	83	72	63	57	57	79	69	61	55	55	63	57	51	58	53	48	53	49	45	42
4	76	63	54	47	47	72	61	52	46	46	56	49	43	51	45	41	47	42	38	35
5	70	56	47	40	40	66	54	45	39	39	50	42	37	46	40	35	42	37	33	30
6	64	50	41	35	35	61	48	40	34	34	45	37	32	41	35	30	38	33	28	26
7	59	45	37	30	30	56	44	35	29	29	40	33	28	37	31	27	35	29	25	23
8	55	41	33	27	27	52	40	32	26	26	37	30	25	34	28	24	32	26	22	20
9	51	38	29	24	24	49	36	29	23	23	34	27	22	31	25	21	29	24	20	18
10	48	35	27	21	21	46	33	26	21	21	31	25	20	29	23	19	27	22	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: mm/dd/yy

### *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	Calibration 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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