

Project Number
16.02340



Date
9/2/2016

Lab 6
Sphere

Test Sample Description

Catalog Number: P710010-12930
Description: 1-lt. LED Wall Sconce 9W LED SAMPLE "A" WITH DIFFUSED LENS

Photometry

Test Method: IES LM-79-08 § 10
Preburn Time: 0:30
Time To Stabilize: 3:07
Total Operating Time: 4:77

Input Voltage (Volts): 119.9
Input Current (Amps): 0.078
Input Wattage (Watts): 9.3
Ambient Temp (°C): 24.8

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 0:30
Time To Stabilize: 0:57
Total Operating Time: 1:27

Input Voltage (Volts): 120.0
Input Current (Amps): 0.078
Input Wattage (Watts): 9.3
Ambient Temp (°C): 24.4



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Checked (sphere): B.LEE
Checked (photometry): M.ELLMANN
Approved: D. BLACK



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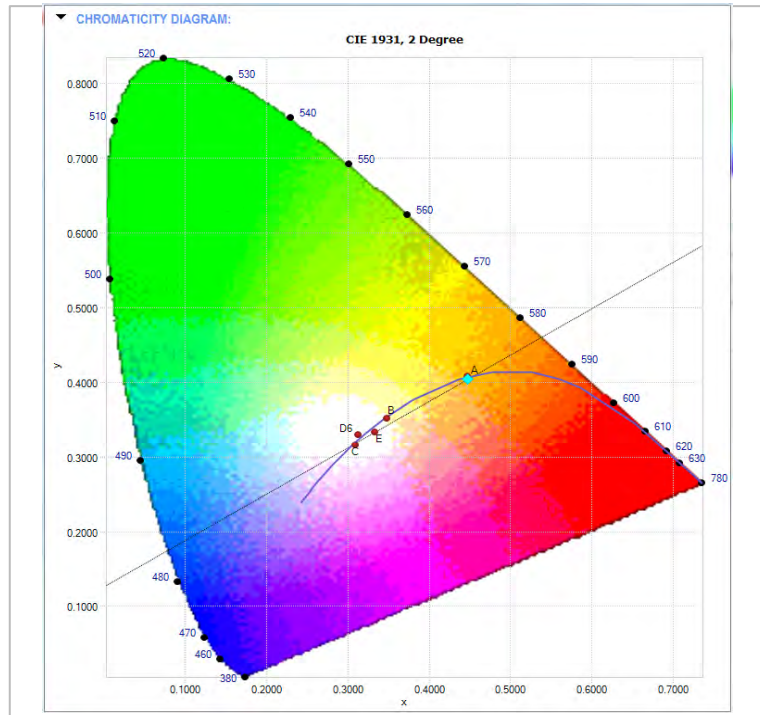


Lamp Cat#: 93070270-3xxx
 Lamp Desc: 20 - Nichia 3000K LEDs
 Driver Desc: n/a

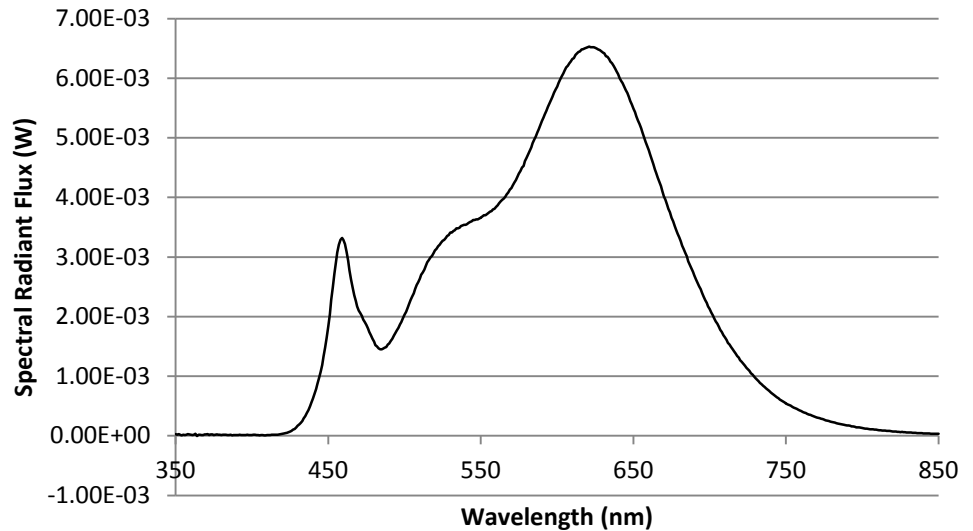
Efficacy: 32.5 LPW S/P Ratio: 1.4 LM/LM

Spectral Results

Name	Value	Unit
Φ	1.08	watts
$\Phi(v)$	302	lumens
$\Phi(v')$	421	lm'
Chrom x	0.4471	
Chrom y	0.4039	
Chrom u	0.2572	
Chrom v	0.3486	
Duv	0.0013	
Chrom u'	0.2572	
Chrom v'	0.5228	
CCT	2833	K
Purity	55.4	%
λ (dom)	584.0	nm
FWHM	156.2	nm
λ (peak)	621.3	nm
λ (center)	602.9	nm
λ (centroid)	598.6	nm
SDCM	Cool White	
RA	95	
Corr. Coef.	0.001317658	
Correlation	0.0054	
R1	97.6	
R2	99.3	
R3	98.2	
R4	96.3	
R5	97.0	
R6	95.4	
R7	91.4	
R8	84.6	
R9	68.0	
R10	99.1	
R11	98.7	
R12	82.2	
R13	99.2	
R14	99.5	



Spectral Distribution of Radiant Flux



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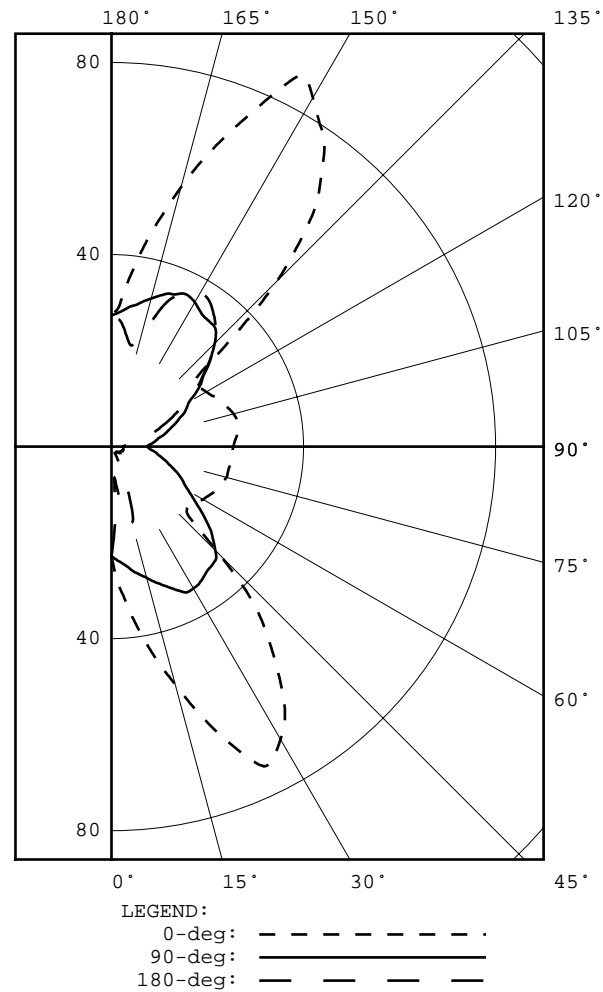
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 PREPARED FOR: Progress
 CATALOG NUMBER: P710010-12930
 LUMINAIRE: 1-lt. LED Wall Sconce
 LAMP CAT. NO.: 93070270-3xxx
 LAMP: 20-Nichia 3000K LED's
 BALLAST CAT. NO.: N/A
 BALLAST: 1-CC
 Refractor Material : White linen
 MOUNTING: Wall
 (SEE PAGE 4 FOR MORE INFORMATION)

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CANDELA DISTRIBUTION						FLUX
	0.0	45.0	90.0	135.0	180.0	
0	22.8	22.8	22.8	22.8	22.8	
5	31.9	30.2	24.3	12.5	6.6	2.2
15	51.3	44.5	28.3	13.9	16.4	8.4
25	73.2	60.5	33.1	16.3	3.4	16.5
35	62.0	71.9	33.3	11.2	1.6	21.9
45	32.0	53.3	30.6	10.7	1.7	20.7
55	20.8	28.4	22.3	9.0	2.1	15.6
65	23.1	18.9	16.2	7.1	2.3	13.5
75	24.8	19.4	11.8	5.6	2.6	13.2
85	25.3	19.2	8.4	4.3	2.5	12.5
90	25.2	18.9	7.3	3.8	2.3	
95	26.2	19.9	8.6	4.7	3.2	13.2
105	26.3	20.2	12.0	9.1	7.8	15.4
115	24.1	19.5	16.8	14.5	13.5	17.2
125	21.4	36.3	22.7	22.2	22.0	22.2
135	48.7	61.9	30.4	30.0	30.1	30.4
145	77.4	82.4	33.3	33.2	36.1	30.9
155	81.7	66.2	35.2	29.2	35.0	21.8
165	55.9	48.0	31.9	23.7	23.5	10.4
175	33.2	31.4	28.5	27.3	25.6	2.9
180	27.3	27.3	27.3	27.3	27.3	



ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	27.1	9.4
0- 40	49.0	17.0
0- 60	85.3	29.5
0- 90	124.5	43.1
90-120	45.8	15.9
90-130	68.0	23.5
90-150	129.3	44.8
90-180	164.4	56.9
0-180	288.9	100.0

EFFICACY = 31.1 Lm/W
 CIE TYPE - DIRECT-INDIRECT
 PLANE : 0-DEG 90-DEG 180-DEG
 SPACING CRITERIA : 2.0 2.0 0.1



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ADDITIONAL INFORMATION

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 36.2 X N/A
FIELD ANGLE (10%): 256.9 X 169.1 DEGREES



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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 3.000 6.750
HEIGHT OF SIDE : 6.750 6.750

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 90-DEG	AVERAGE 180-DEG
45	1065.	1656.	57.
55	659.	1225.	66.
65	718.	933.	71.
75	780.	737.	82.
85	831.	593.	82.



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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
5.0	31.9	31.6	30.2	28.1	24.3	20.4	12.5	7.9	6.6
10.0	41.5	40.4	37.0	32.4	26.4	13.4	9.5	11.2	11.9
15.0	51.3	50.0	44.5	37.0	28.3	9.9	13.9	16.8	16.4
20.0	62.7	60.3	52.3	41.8	30.6	12.8	17.1	13.9	10.5
25.0	73.2	70.5	60.5	46.2	33.1	15.1	16.3	7.2	3.4
30.0	70.4	72.4	68.1	49.7	34.1	16.2	13.3	3.9	1.3
35.0	62.0	66.4	71.9	49.2	33.3	16.7	11.2	4.0	1.6
40.0	49.9	54.8	63.8	46.0	32.4	16.9	10.9	4.0	1.5
45.0	32.0	41.9	53.3	42.5	30.6	17.0	10.7	4.1	1.7
50.0	20.5	22.7	43.9	35.9	26.9	16.5	10.0	4.2	2.1
55.0	20.8	20.4	28.4	26.4	22.3	15.4	9.0	4.0	2.1
60.0	22.0	21.4	19.1	18.3	18.6	14.0	8.1	3.7	2.2
65.0	23.1	22.5	18.9	15.7	16.2	12.3	7.1	3.4	2.3
70.0	23.8	23.0	19.1	15.0	13.9	10.7	6.1	3.0	2.3
75.0	24.8	23.6	19.4	14.4	11.8	9.4	5.6	2.9	2.6
80.0	24.9	23.8	19.2	13.5	9.9	8.0	4.7	2.3	2.4
85.0	25.3	24.0	19.2	13.0	8.4	7.0	4.3	2.1	2.5
90.0	25.2	23.9	18.9	12.4	7.3	6.0	3.8	2.0	2.3
95.0	26.2	24.6	19.9	13.4	8.6	7.2	4.7	2.8	3.2
100.0	26.8	25.3	20.3	14.2	9.9	8.9	6.7	4.8	5.4
105.0	26.3	25.1	20.2	15.0	12.0	11.2	9.1	7.4	7.8
110.0	25.1	24.2	19.9	15.7	14.2	13.4	11.5	10.1	10.2
115.0	24.1	23.2	19.5	16.4	16.8	16.2	14.5	13.5	13.5
120.0	22.8	22.0	21.2	18.9	18.7	19.0	18.1	17.6	17.6
125.0	21.4	22.1	36.3	27.5	22.7	21.8	22.2	22.0	22.0
130.0	25.2	34.2	52.0	37.1	26.1	24.2	26.3	26.5	26.3
135.0	48.7	55.7	61.9	44.8	30.4	25.7	30.0	30.4	30.1
140.0	66.6	70.0	73.7	49.3	33.0	26.2	32.4	33.9	33.6
145.0	77.4	79.5	82.4	52.6	33.3	25.5	33.2	36.2	36.1
150.0	83.9	87.3	74.5	53.9	34.7	25.3	32.5	36.4	36.9
155.0	81.7	78.0	66.2	49.7	35.2	25.6	29.2	34.4	35.0
160.0	68.4	66.0	57.4	44.5	33.9	26.5	25.1	29.7	30.9
165.0	55.9	54.3	48.0	39.1	31.9	27.5	23.7	23.3	23.5
170.0	44.1	43.1	39.5	34.0	30.0	28.5	25.4	22.6	21.7
175.0	33.2	32.9	31.4	29.1	28.5	28.2	27.3	26.1	25.6
180.0	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3	27.3



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ZONAL LUMEN SUMMARY

0- 5	0.5
5- 10	1.6
10- 15	3.2
15- 20	5.2
20- 25	7.3
25- 30	9.3
30- 35	10.7
35- 40	11.2
40- 45	11.0
45- 50	9.7
50- 55	8.4
55- 60	7.2
60- 65	6.8
65- 70	6.8
70- 75	6.7
75- 80	6.5
80- 85	6.4
85- 90	6.1
90- 95	6.3
95-100	6.9
100-105	7.5
105-110	7.9
110-115	8.4
115-120	8.9
120-125	10.1
125-130	12.1
130-135	14.4
135-140	16.0
140-145	16.1
145-150	14.8
150-155	12.4
155-160	9.3
160-165	6.4
165-170	4.0
170-175	2.2
175-180	0.7



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	1
5- 10	2
10- 15	3
15- 20	5
20- 25	7
25- 30	9
30- 35	11
35- 40	11
40- 45	11
45- 50	10
50- 55	8
55- 60	7
60- 65	7
65- 70	7
70- 75	7
75- 80	7
80- 85	6
85- 90	6
90- 95	6
95-100	7
100-105	7
105-110	8
110-115	8
115-120	9
120-125	10
125-130	12
130-135	14
135-140	16
140-145	16
145-150	15
150-155	12
155-160	9
160-165	6
165-170	4
170-175	2
175-180	1

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	2
0- 20	11
0- 30	27
0- 40	49
0- 50	70
0- 60	85
0- 70	99
0- 80	112
0- 90	124
0-100	138
0-110	153
0-120	170
0-130	192
0-140	223
0-150	254
0-160	276
0-170	286
0-180	289



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50	43
1	95	90	85	81	86	82	78	74	67	64	62	54	52	50	41	40	39	33
2	86	77	71	65	78	71	65	60	58	54	50	46	43	41	36	34	32	27
3	78	68	60	54	71	62	55	50	51	46	42	41	37	34	31	29	26	22
4	71	60	51	45	64	55	47	42	45	40	35	36	32	29	28	25	23	19
5	65	53	45	38	59	49	41	36	40	34	30	32	28	25	25	22	19	16
6	60	47	39	33	54	43	36	31	36	30	26	29	25	21	22	19	17	14
7	55	43	34	29	50	39	32	27	32	27	23	26	22	19	20	17	15	12
8	51	39	31	25	46	35	28	23	29	24	20	24	20	17	19	16	13	11
9	47	35	27	22	43	32	25	21	27	21	18	22	18	15	17	14	12	10
10	44	32	25	20	40	29	23	18	25	19	16	20	16	13	16	13	11	9

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 LUMINAIRE SAMPLE.

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Goniophotometer Calibration

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

Lamp Number: ITL78966-1000-14

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 23413.0 Lumens

Calibration Date:

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>		N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332		11/10/2016
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01		11/10/2016

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	11/10/2016
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	11/10/2016
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	031159372	11/10/2016
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148605	11/10/2016
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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