

## IES Report

# ZipTwo® | 707 | Square 3519, Diffuse | 90 CRI | SO

707-Z2-4-48-XX-XX-X-0-Z-SO-359-F6-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	118	121	124	125
Total Lumens, 4' rail length (1219mm)	3067	3163	3228	3260
Lumens per foot (305mm)	767	791	807	815
Input Power (W), 4' rail length (1219mm)	26.2	26.2	26.2	26.2
Watts per foot (305mm)	6.6	6.6	6.6	6.6
CRI	95	95	95	95

Due to the large number of options in Vode's product offering, most Vode IES reports are factored reports prepared from source reports. Source reports are the IES test reports prepared for Vode by an NVLAP accredited photometric test laboratory. Factored reports are based on data from the Vode source reports.

If the data above is in black, it is directly from a Vode source report. If it is in grey, it is factored from Vode source reports. Reference details on Vode source reports can be found on the [IES File Finder](#) page on [vode.com](#).



8165 E Kaiser Blvd.  
Anaheim, CA 92808  
www.lightlaboratory.com

Report No: L082011211



**Report No:** L082011211

**Issue Date:** 9/4/2020

**Report Prepared For:** Vode Lighting  
21684 8th Street East, Suite 700, Sonoma, CA 95476

**Model Number:** 707-Z2-48-Z-SO-359-F6-WH

**Test:** Photometric/Colorimetric/Electrical Test

**Standards Used:** Appropriate part or all test guidelines were used for test performed:

*IESNA LM79: 2008* Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

*ANSI NEMA ANSLG C78.377: 2008* Specification of the Chromaticity of Solid State Lighting Products

*ANSI C82.77:2002:* Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

**Description of Sample:** Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

**Special Test Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 8/21/20

**Date of Tests:** 8/21/20 - 9/4/20

**Seasoning of Sample:** No seasoning was performed in accordance with IESNA LM-79.

#### Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

### General Information

<b>Manufacturer:</b>	Vode Lighting
<b>Model Number:</b>	707-Z2-48-Z-SO-359-F6-WH
<b>Driver Model Number:</b>	MEAN WELL HLG-40H-36A

### Test Summary

<b>Total Lumens:</b>	3227.81
<b>Efficacy:</b>	123.28
<b>Color Redering Index:</b>	95.0
<b>Correlated Color Temperature:</b>	3315
<b>Input Voltage (VAC/60Hz):</b>	120.02
<b>Input Current (Amp):</b>	0.2197
<b>Input Power (W):</b>	26.18
<b>Input Power Factor:</b>	0.9930
<b>Current ATHD (%):</b>	9.0%

### Test Condition

<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	2:10

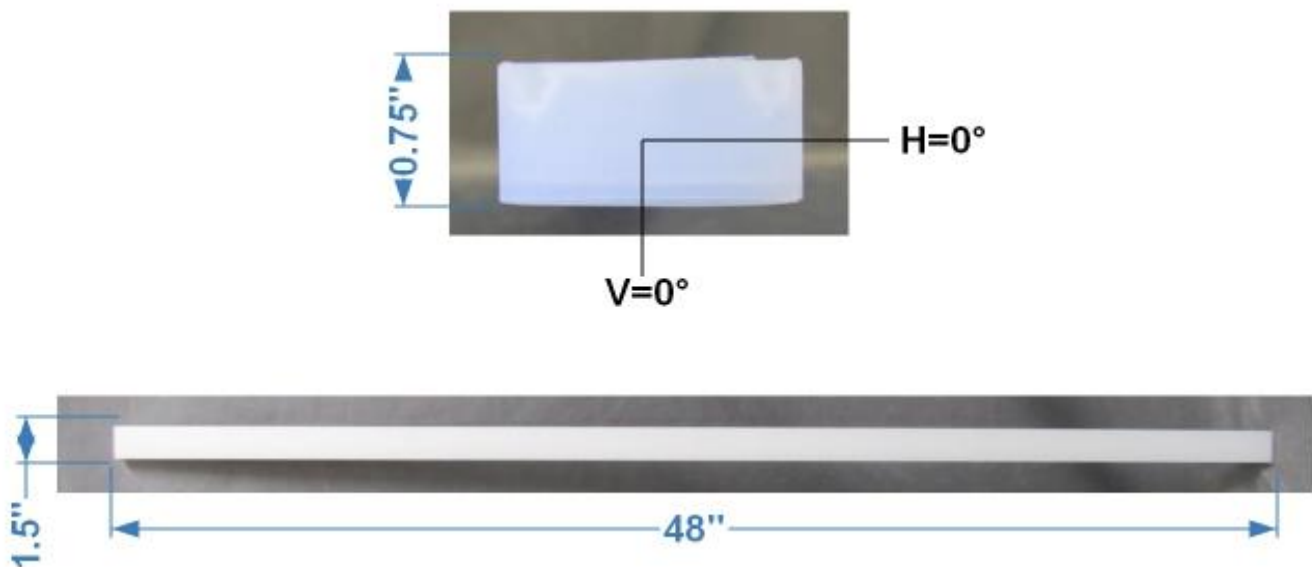
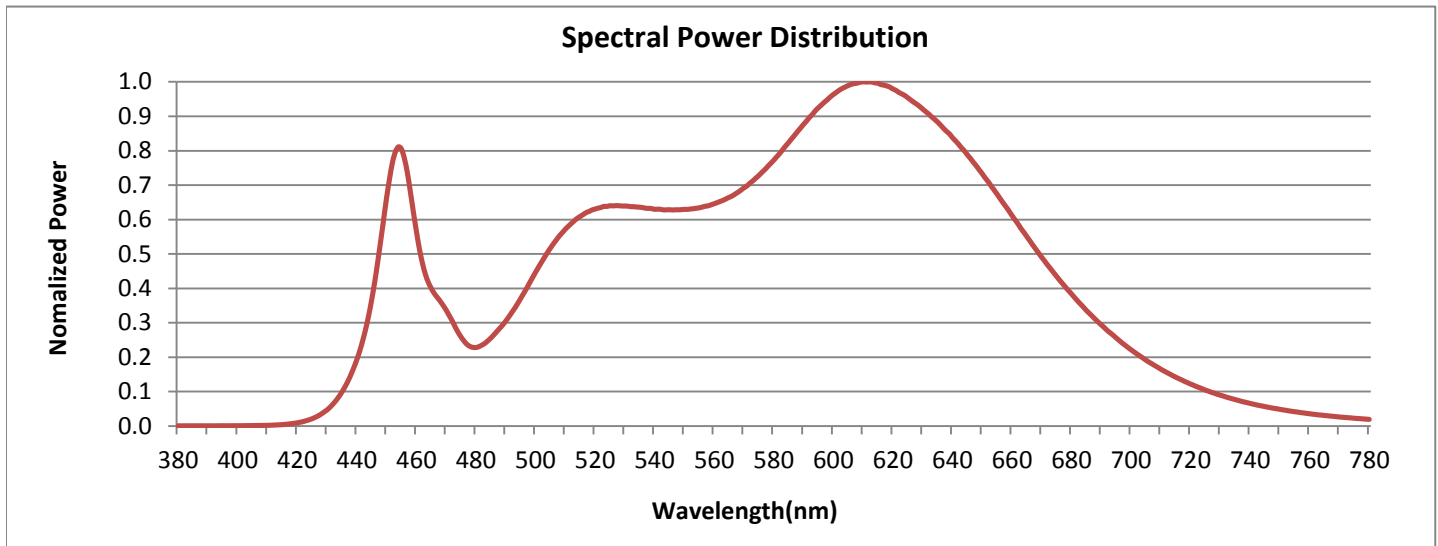


FIG. 1 LUMINAIRE

## Colorimetry Test Results

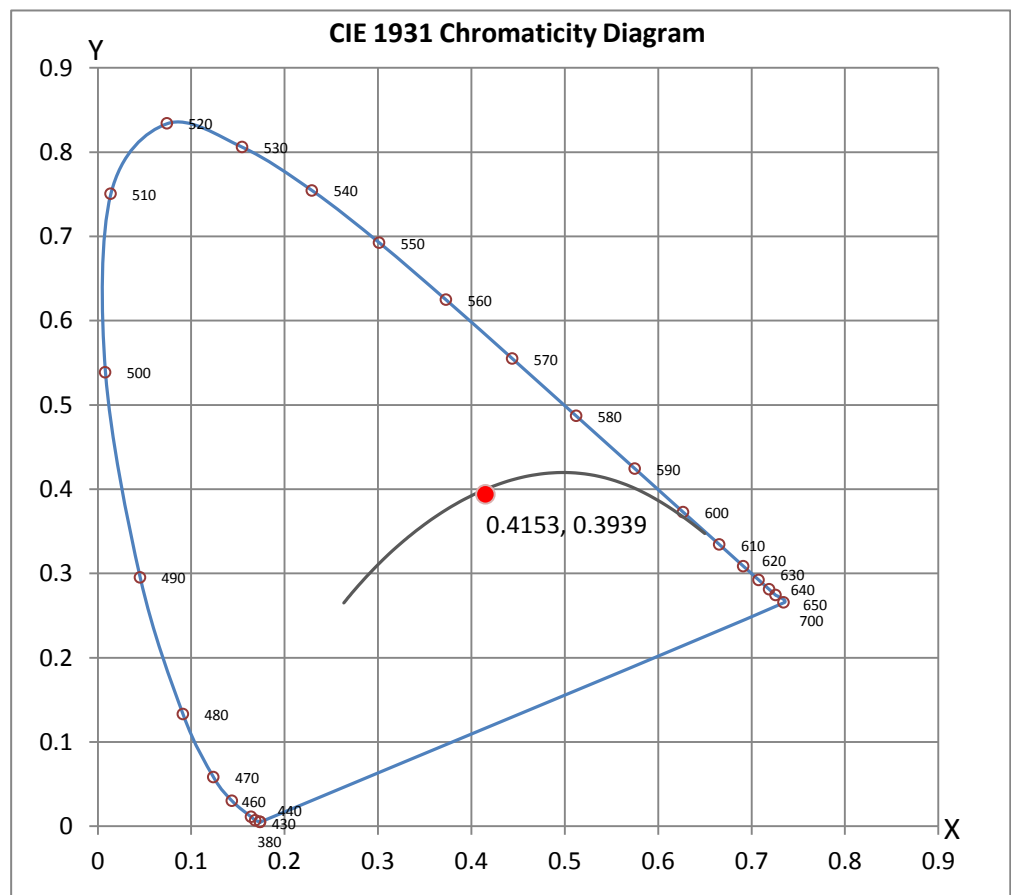


### CRI & CCT

x	0.4153
y	0.3939
u'	0.2409
v'	0.5141
CRI	95.00
CCT	3315
Duv	-0.00068

### R Values

R1	96.86
R2	98.70
R3	98.84
R4	98.06
R5	97.38
R6	96.17
R7	91.70
R8	82.55
R9	60.15
R10	96.93
R11	95.79
R12	79.90
R13	98.16
R14	99.22
R15	91.05





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## Test Methods

### Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Reviewed by:

Steve Kang  
Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 12*

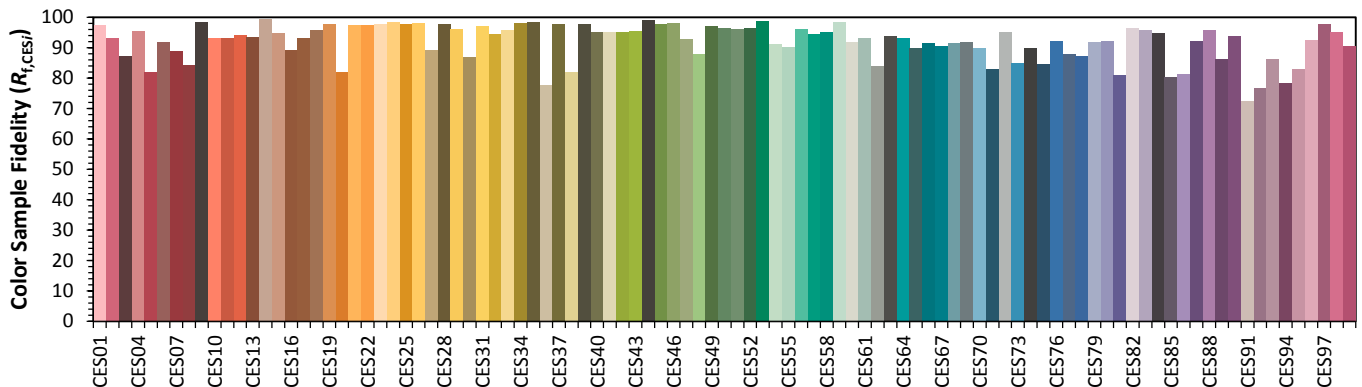
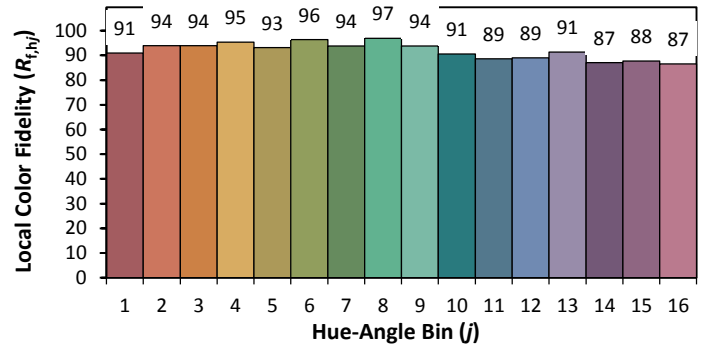
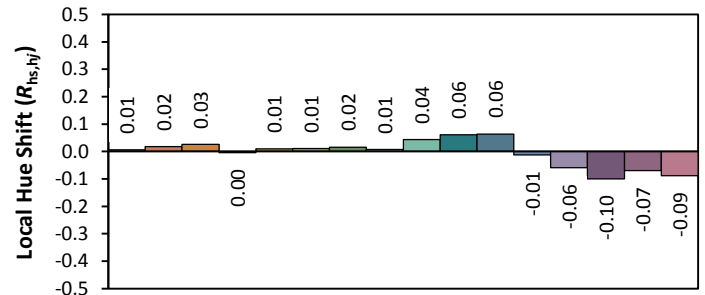
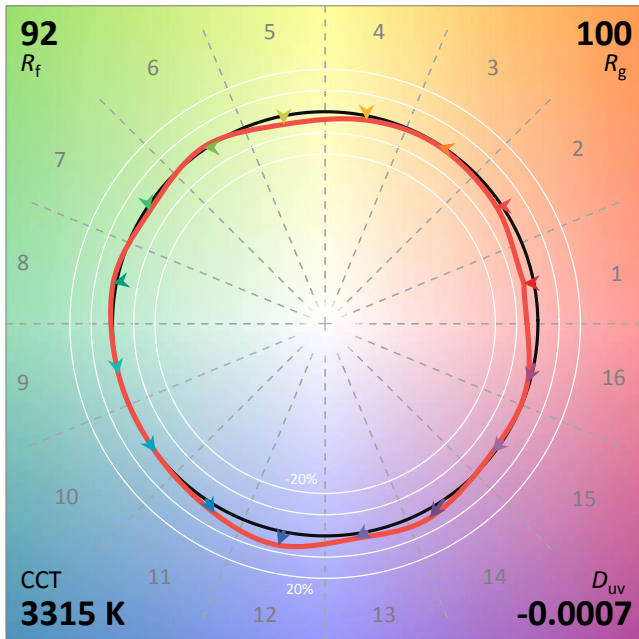
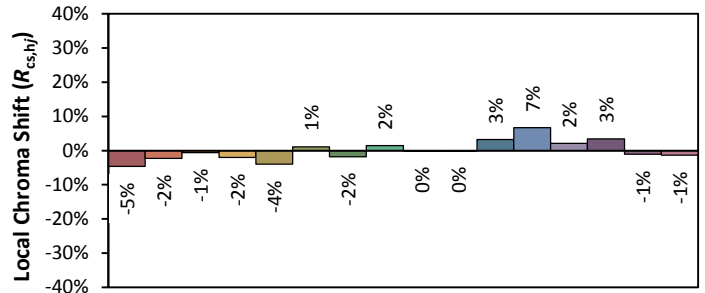
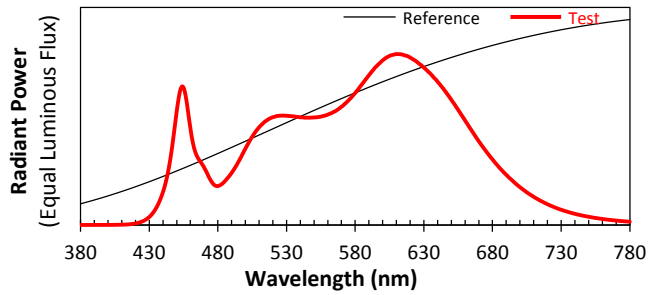
# ANSI/IES TM-30-18 Color Rendition Report

Source: LED Luminaire

Manufacturer: Vode Lighting

Date: 9/4/2020

Model: 707-Z2-48-Z-SO-359-F6-WH



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4153

y 0.3939

u' 0.2409

v' 0.5141

CIE 13.3-1995  
(CRI)

$R_a$  95

$R_g$  60



8165 E. Kaiser Blvd. Anaheim, CA 92808  
www.lightlaboratory.com

## Photometric Test Report

### IES INDOOR REPORT

PHOTOMETRIC FILENAME : L082011211.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L082011211  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUE DATE] 9/2/2020  
[MANUFAC] Vode Lighting  
[LUMCAT] 707-Z2-48-Z-SO-359-F6-WH  
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board,  
[MORE] square 3519, diffuse lens, standard output  
[BALLASTCAT] MEAN WELL HLG-40H-36A(700mA)  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[INPUT] 120.02VAC, 26.18W  
[TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3228
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	123
Total Luminaire Watts	26.18
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.34
Spacing Criterion (90-270)	1.26
Spacing Criterion (Diagonal)	1.44
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.13 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.06 ft

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	12458	12806	15236
55	11646	11824	14582
65	10814	10732	13822
75	9809	9481	12990
85	8650	8046	12785

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011211.IES**

**CANDELA TABULATION**

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
<b>0</b>	811.56	811.56	811.56	811.56	811.56	811.56	811.56	811.56	811.56	811.56
<b>5</b>	810.91	810.79	810.87	810.66	810.62	810.58	810.24	810.16	810.08	809.87
<b>10</b>	807.98	807.90	808.02	807.60	807.10	806.68	806.09	805.34	804.59	803.75
<b>15</b>	798.51	798.26	797.80	797.50	796.71	795.95	794.90	793.60	792.26	790.75
<b>20</b>	781.74	781.53	781.03	780.40	779.44	778.14	776.59	774.74	772.82	770.76
<b>25</b>	758.86	758.65	758.02	757.02	755.67	753.83	751.69	749.35	746.62	743.69
<b>30</b>	730.86	730.53	729.77	728.60	726.71	724.20	721.52	718.25	714.77	710.87
<b>35</b>	698.34	697.84	696.83	695.15	692.85	689.91	686.44	682.58	678.14	673.44
<b>40</b>	661.79	661.54	660.24	657.98	655.13	651.36	647.16	642.26	636.90	631.24
<b>45</b>	622.56	621.89	620.34	617.70	614.01	609.49	604.33	598.55	592.09	585.43
<b>50</b>	580.40	579.56	577.72	574.57	570.26	564.97	558.73	551.90	544.27	536.60
<b>55</b>	535.89	535.22	533.00	529.22	524.19	518.12	510.91	503.15	494.56	485.76
<b>60</b>	489.20	488.32	485.93	481.78	476.00	469.12	460.99	452.02	442.17	432.45
<b>65</b>	439.74	438.82	436.01	431.65	425.32	417.65	409.06	399.17	388.44	377.80
<b>70</b>	387.60	386.64	383.83	379.05	372.60	364.55	355.41	345.02	334.00	322.77
<b>75</b>	334.21	333.29	330.48	325.74	319.12	310.99	301.77	291.00	279.51	267.86
<b>80</b>	280.14	279.09	276.37	271.84	265.26	257.34	248.20	237.60	226.07	214.38
<b>85</b>	228.76	227.88	225.32	220.88	214.63	206.96	197.95	187.60	176.16	164.51
<b>90</b>	180.22	179.43	176.87	172.72	166.68	159.27	150.51	140.28	129.01	117.35
<b>95</b>	161.61	160.90	158.64	154.82	149.42	142.67	134.66	125.28	114.88	104.15
<b>100</b>	156.00	155.28	153.11	149.67	144.60	138.31	130.77	122.01	112.24	102.01
<b>105</b>	151.22	150.51	148.54	145.14	140.32	134.29	127.20	118.82	109.60	99.67
<b>110</b>	145.69	145.02	143.13	139.94	135.38	129.68	122.89	114.97	106.21	96.69
<b>115</b>	139.40	138.77	136.97	134.04	129.55	124.23	117.82	110.31	102.06	93.30
<b>120</b>	132.27	131.69	129.97	127.12	123.18	117.98	111.99	105.03	97.36	88.98
<b>125</b>	124.14	123.60	122.01	119.37	115.68	110.94	105.41	98.95	91.75	83.95
<b>130</b>	115.17	114.67	113.20	110.82	107.42	103.06	97.95	91.91	84.58	75.78
<b>135</b>	105.20	104.82	103.48	101.26	98.12	94.05	89.27	81.94	74.39	67.19
<b>140</b>	94.30	93.84	92.71	90.78	88.02	84.41	77.75	71.21	64.92	58.72
<b>145</b>	83.41	83.07	82.11	80.47	77.71	71.75	66.22	61.02	56.08	51.55
<b>150</b>	72.17	71.80	70.96	69.36	64.29	59.68	55.66	51.80	48.91	45.68
<b>155</b>	60.77	60.44	59.64	56.29	52.01	48.70	46.06	44.30	41.62	38.18
<b>160</b>	48.53	48.28	46.61	42.58	39.94	37.81	36.63	34.70	31.81	29.00
<b>165</b>	34.28	33.91	30.76	29.34	28.25	28.17	27.24	25.52	23.81	22.38
<b>170</b>	23.39	21.38	20.12	19.62	20.45	20.41	19.95	19.41	18.74	17.94
<b>175</b>	14.42	13.37	13.75	14.67	14.84	14.71	14.50	14.46	14.25	14.00
<b>180</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Vert. Angles**      **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>
<b>0</b>	811.56	811.56	811.56	811.56	811.56	811.56	811.56	811.56	811.56
<b>5</b>	809.66	809.62	809.36	809.15	809.11	809.24	809.11	808.94	809.07
<b>10</b>	802.87	801.69	800.77	799.89	799.30	798.72	798.42	798.13	798.34
<b>15</b>	789.20	787.44	785.85	784.05	782.20	780.70	779.69	779.35	779.06
<b>20</b>	768.16	765.86	763.47	760.83	758.31	755.84	753.62	752.70	752.41
<b>25</b>	740.50	737.23	733.80	730.44	727.17	723.82	720.59	718.79	718.29
<b>30</b>	706.76	702.74	698.55	694.23	690.17	685.93	682.03	679.14	678.47
<b>35</b>	668.58	663.38	658.23	652.82	647.71	642.68	638.03	633.92	632.87
<b>40</b>	625.08	618.96	612.92	606.47	600.56	594.69	589.12	584.25	582.83
<b>45</b>	578.30	571.01	563.93	556.59	549.84	542.97	536.64	531.03	528.76
<b>50</b>	528.39	520.00	512.08	503.91	496.07	488.57	481.65	475.16	472.10
<b>55</b>	476.33	467.07	458.10	448.88	440.16	431.86	424.02	416.98	413.09
<b>60</b>	422.14	411.83	402.02	392.00	382.36	373.23	364.72	357.09	352.48



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011211.IES**

**CANDELA TABULATION - (Cont.)**

<b>65</b>	366.65	355.50	344.85	334.25	324.23	314.22	305.41	297.07	291.54
<b>70</b>	310.90	299.17	287.85	276.28	265.47	255.24	245.69	237.05	230.52
<b>75</b>	255.62	243.38	231.52	219.62	208.35	197.57	187.64	178.80	171.67
<b>80</b>	201.85	189.48	177.20	165.18	153.82	142.79	132.57	123.39	115.34
<b>85</b>	152.10	139.57	127.37	114.97	103.36	91.70	81.39	71.75	63.12
<b>90</b>	104.78	92.17	79.68	66.85	54.53	42.63	31.64	21.84	12.74
<b>95</b>	92.46	80.64	68.99	56.92	45.35	34.07	23.51	13.87	5.20
<b>100</b>	91.12	79.59	68.28	56.50	45.14	34.07	23.56	13.45	5.62
<b>105</b>	89.19	78.17	67.19	55.79	44.72	33.57	22.76	13.24	6.12
<b>110</b>	86.72	76.11	65.59	54.61	43.59	32.57	22.55	12.28	6.54
<b>115</b>	83.66	73.68	63.41	52.43	42.04	31.60	22.05	11.53	7.13
<b>120</b>	79.93	70.45	60.40	50.25	40.15	30.64	19.95	10.77	7.46
<b>125</b>	74.94	65.22	55.70	45.77	36.97	28.04	18.15	10.02	7.88
<b>130</b>	67.10	58.64	50.00	41.66	33.99	24.85	16.68	9.81	8.30
<b>135</b>	59.64	52.22	45.10	37.89	30.43	21.96	14.92	9.56	8.72
<b>140</b>	52.60	46.77	40.53	33.66	25.78	19.53	13.83	9.51	9.05
<b>145</b>	47.28	42.08	35.29	28.04	22.51	16.93	12.95	9.51	9.30
<b>150</b>	41.49	35.42	29.34	24.69	19.78	16.18	12.66	10.27	10.06
<b>155</b>	32.94	28.71	25.27	21.21	18.19	15.26	12.36	10.98	10.90
<b>160</b>	26.41	23.22	20.79	18.74	16.60	14.04	12.07	11.53	11.48
<b>165</b>	20.91	19.53	18.06	16.39	14.63	13.04	12.20	11.99	11.99
<b>170</b>	17.14	16.18	15.13	14.12	13.24	12.74	12.57	12.62	12.66
<b>175</b>	13.75	13.58	13.29	13.08	12.99	12.99	13.08	13.08	13.08
<b>180</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011211.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	300.05	N.A.	9.30
0-30	641.92	N.A.	19.90
0-40	1061.47	N.A.	32.90
0-60	1941.62	N.A.	60.20
0-80	2590.31	N.A.	80.20
0-90	2763.6	N.A.	85.60
10-90	2686.51	N.A.	83.20
20-40	761.42	N.A.	23.60
20-50	1210.53	N.A.	37.50
40-70	1250.57	N.A.	38.70
60-80	648.68	N.A.	20.10
70-80	278.26	N.A.	8.60
80-90	173.30	N.A.	5.40
90-110	205.98	N.A.	6.40
90-120	290.82	N.A.	9.00
90-130	359.12	N.A.	11.10
90-150	439.61	N.A.	13.60
90-180	464.20	N.A.	14.40
110-180	258.22	N.A.	8.00
0-180	3227.81	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	77.09
10-20	222.96
20-30	341.87
30-40	419.54
40-50	449.11
50-60	431.04
60-70	370.42
70-80	278.26
80-90	173.30
90-100	108.71
100-110	97.28
110-120	84.84
120-130	68.29
130-140	49.23
140-150	31.26
150-160	16.77
160-170	6.55
170-180	1.27

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011211.IES**

**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	111	111	111	111	103	103	103	96	96	96	89	89	89	86
1	103	98	93	88	99	94	90	86	87	84	80	81	78	75	75	73	71	67
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	53	61	55	51	56	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	55	47	40	52	44	39	48	42	37	45	39	35	33
6	65	51	42	36	62	50	41	35	46	39	33	43	37	32	41	35	31	28
7	60	46	38	31	58	45	37	31	42	35	29	39	33	28	37	31	27	25
8	56	42	34	28	54	41	33	27	38	31	26	36	30	25	34	28	24	22
9	52	39	30	25	50	38	30	24	35	28	23	33	27	23	31	26	22	20
10	49	36	28	22	47	35	27	22	33	26	21	31	25	20	29	24	20	18

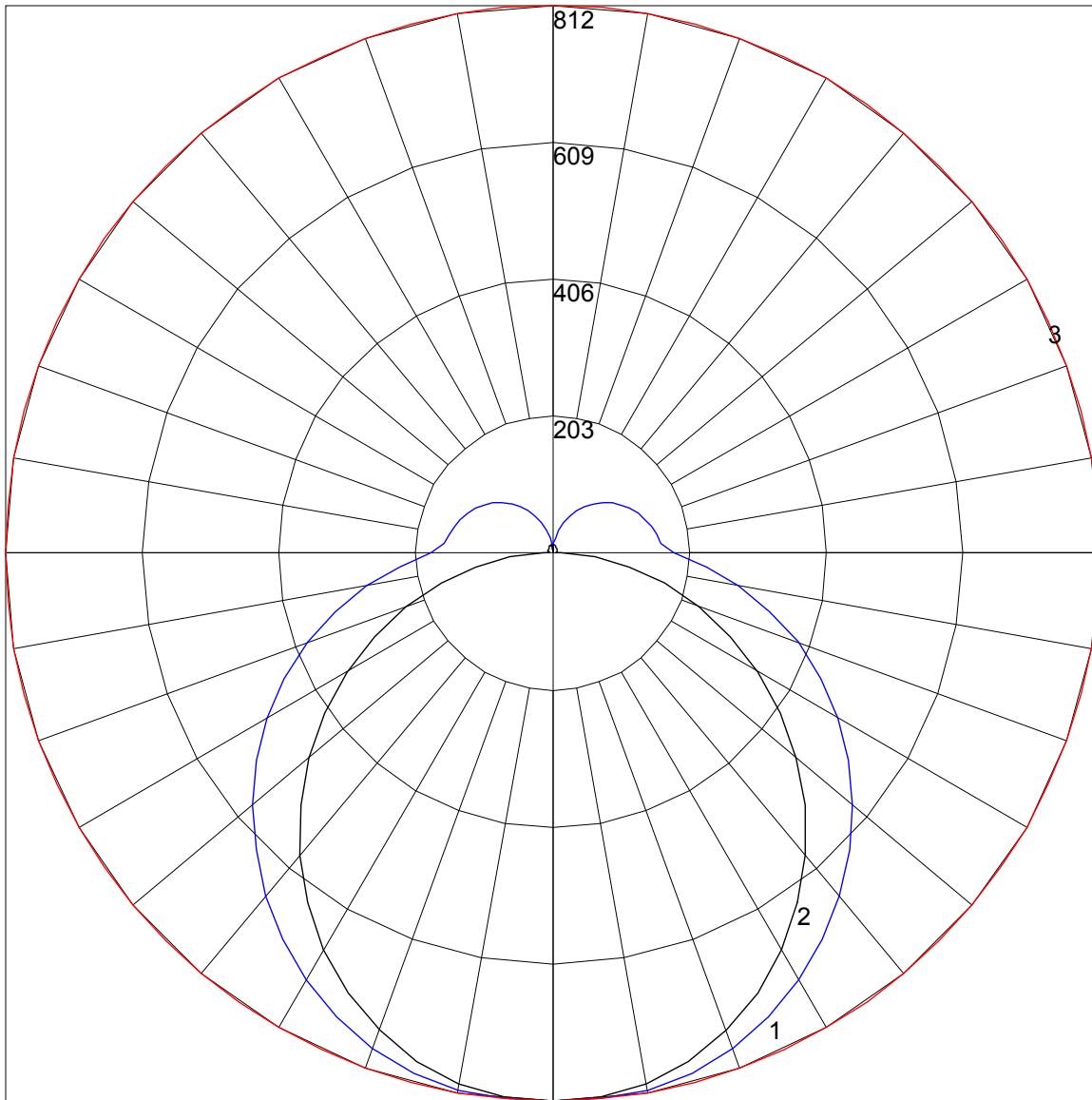
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011211.IES**

**UGR TABLE - CORRECTED**

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	21.0	22.4	21.5	23.0	23.6	18.5	19.9	19.0	20.5	21.1
	3H	23.5	24.8	24.1	25.4	26.1	20.0	21.3	20.6	21.9	22.6
	4H	24.8	26.0	25.4	26.6	27.3	20.6	21.8	21.2	22.4	23.1
	6H	26.1	27.2	26.7	27.8	28.5	21.0	22.1	21.6	22.7	23.5
	8H	26.7	27.8	27.3	28.4	29.1	21.1	22.2	21.7	22.8	23.5
	12H	27.4	28.4	28.0	29.1	29.8	21.2	22.2	21.8	22.9	23.6
4H	2H	21.4	22.6	22.0	23.2	23.9	19.4	20.7	20.0	21.2	21.9
	3H	24.2	25.2	24.8	25.8	26.6	21.2	22.3	21.9	22.9	23.6
	4H	25.5	26.5	26.2	27.2	27.9	21.9	22.9	22.6	23.5	24.3
	6H	27.0	27.8	27.6	28.5	29.3	22.5	23.3	23.1	24.0	24.7
	8H	27.7	28.5	28.4	29.2	30.0	22.6	23.4	23.3	24.1	24.9
	12H	28.6	29.3	29.2	30.0	30.7	22.7	23.5	23.4	24.2	24.9
8H	4H	25.7	26.5	26.4	27.2	28.0	22.6	23.4	23.3	24.1	24.9
	6H	27.3	28.0	28.0	28.7	29.5	23.4	24.0	24.0	24.7	25.5
	8H	28.2	28.8	28.9	29.5	30.3	23.6	24.2	24.3	24.9	25.7
	12H	29.2	29.7	29.9	30.4	31.3	23.8	24.4	24.5	25.1	25.9
12H	4H	25.7	26.5	26.4	27.2	27.9	22.8	23.6	23.5	24.3	25.0
	6H	27.4	28.0	28.1	28.7	29.5	23.6	24.3	24.3	24.9	25.8
	8H	28.3	28.8	29.0	29.6	30.4	24.0	24.5	24.7	25.2	26.1

Maximum UGR = 31.3

POLAR GRAPH



Maximum Candela = 811.56 Located At Horizontal Angle = 0, Vertical Angle = 0

# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)

# 2 - Vertical Plane Through Horizontal Angles (90 - 270)

# 3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)