

## IES Report

# ZipTwo® | 707 | Square 3572, Diffuse | 90 CRI | SO

707-Z2-4-48-XX-XX-X-0-Z-SO-359-H6-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	129	133	136	137
Total Lumens, 4' rail length (1219mm)	3364	3471	3541	3577
Lumens per foot (305mm)	841	868	885	894
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: L082011201



**Report No:** L082011201

**Issue Date:** 9/2/2020

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

**Model Number:** 707-Z2-48-Z-SO-359-H6-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 - 9/2/20

**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-H6-WH
<b>Driver Model Number:</b>	MEAN WELL HLG-40H-36A

### Test Summary

<b>Total Lumens:</b>	3541.36
<b>Efficacy:</b>	135.19
<b>Color Redering Index:</b>	95.2
<b>Correlated Color Temperature:</b>	3378
<b>Input Voltage (VAC/60Hz):</b>	120.02
<b>Input Current (Amp):</b>	0.2198
<b>Input Power (W):</b>	26.20
<b>Input Power Factor:</b>	0.9930
<b>Current ATHD (%):</b>	8.9%

### Test Condition

<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:50
<b>Total Operating Time (Hours):</b>	2:25

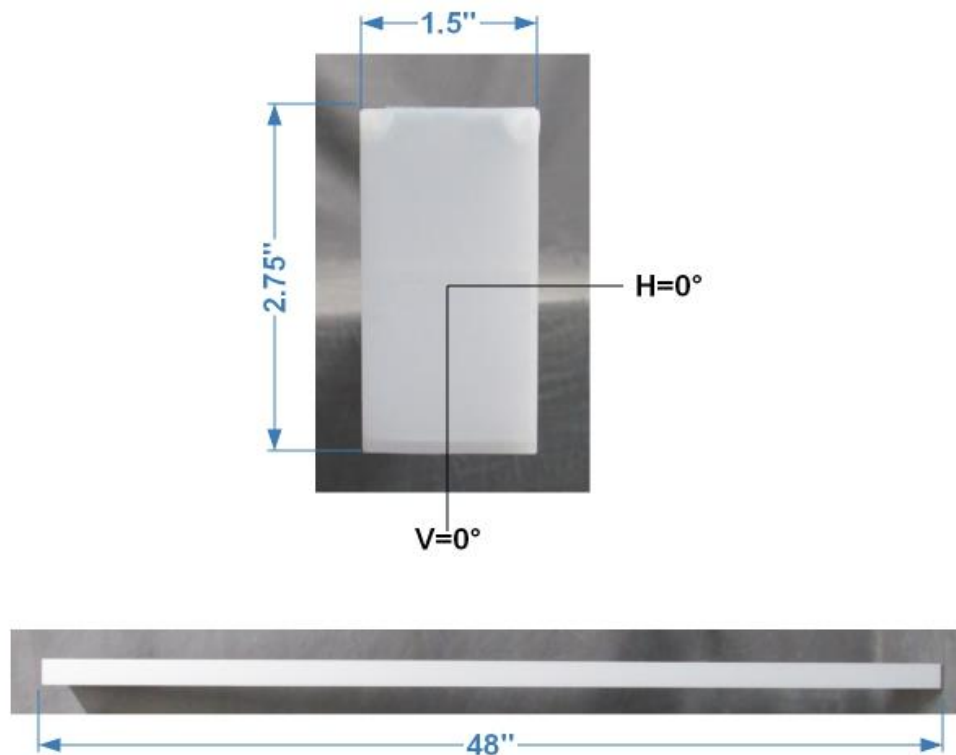
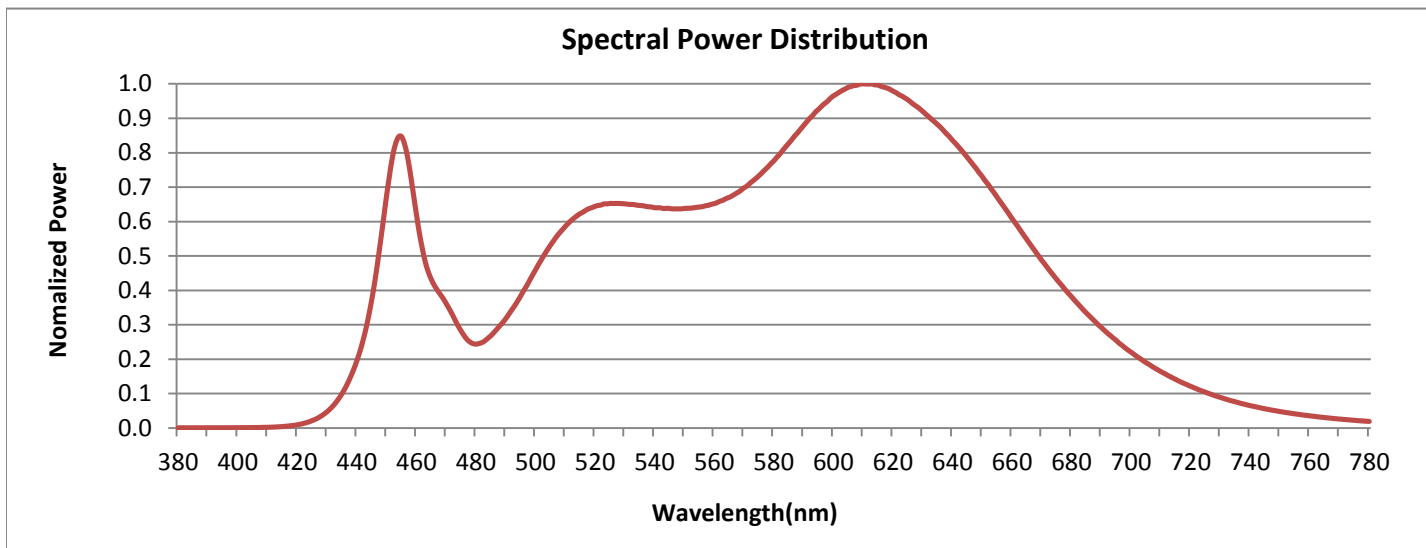


FIG. 1 LUMINAIRE

## Colorimetry Test Results

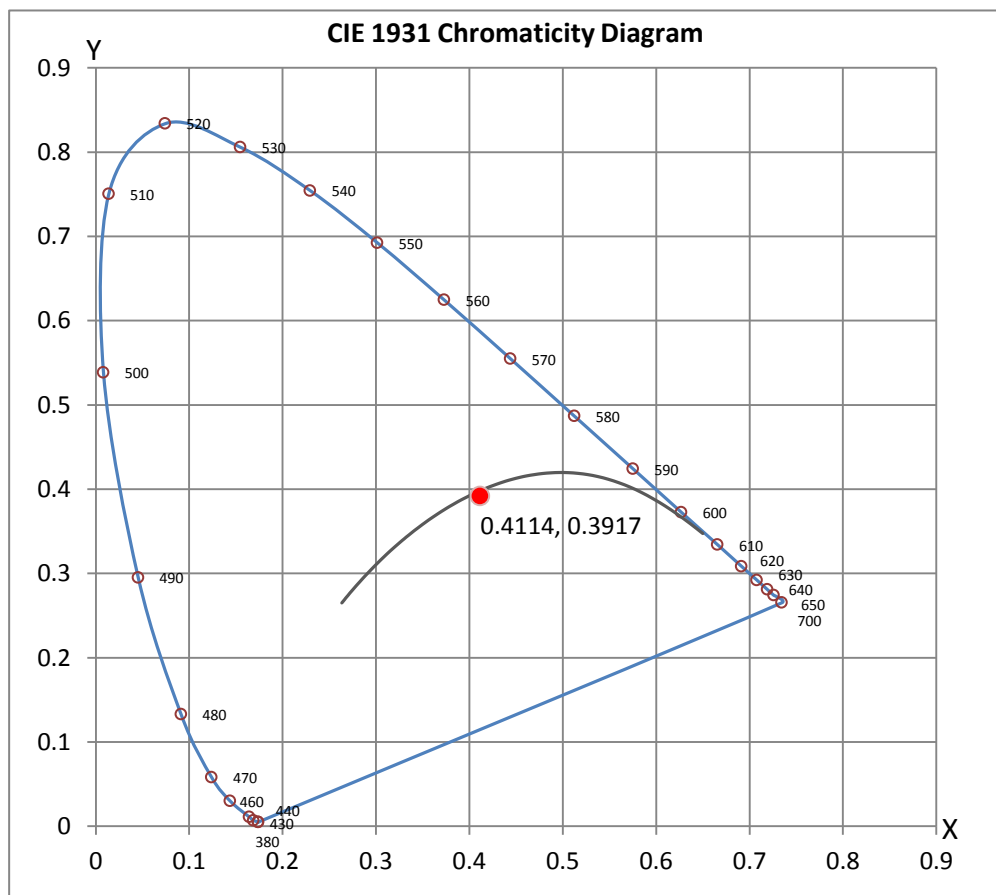


### CRI & CCT

x	0.4114
y	0.3917
u'	0.2393
v'	0.5126
CRI	95.20
CCT	3378
Duv	-0.00086

### R Values

R1	97.22
R2	99.04
R3	98.72
R4	98.33
R5	97.60
R6	95.88
R7	91.77
R8	83.19
R9	61.76
R10	97.76
R11	95.80
R12	79.32
R13	98.64
R14	99.31
R15	91.67





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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*

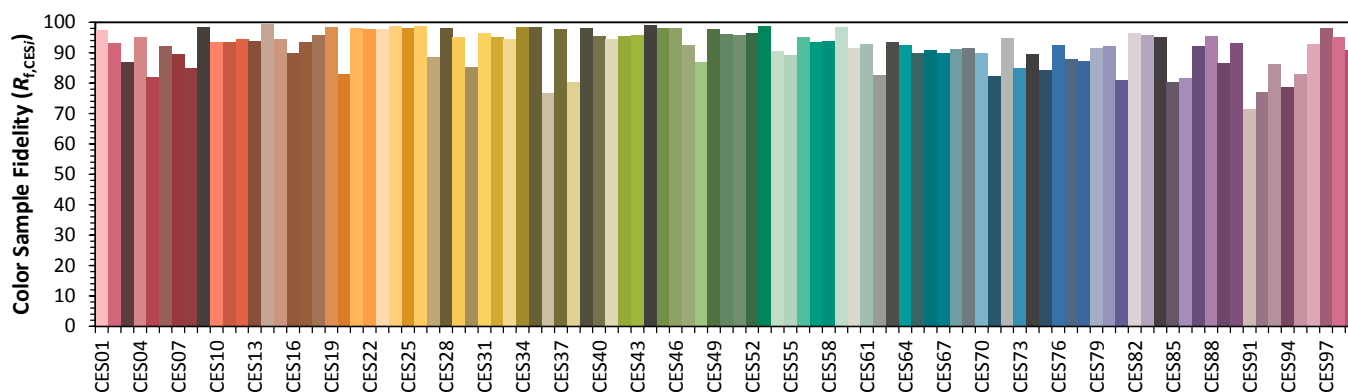
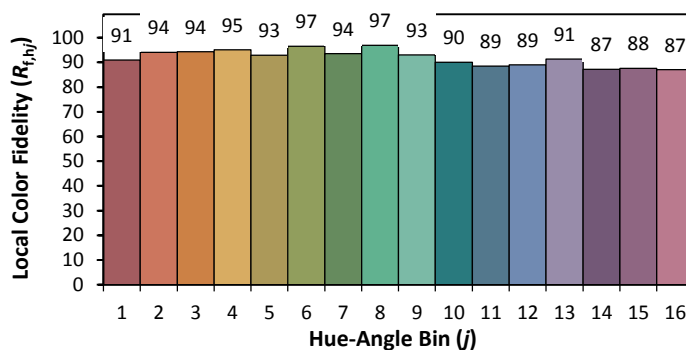
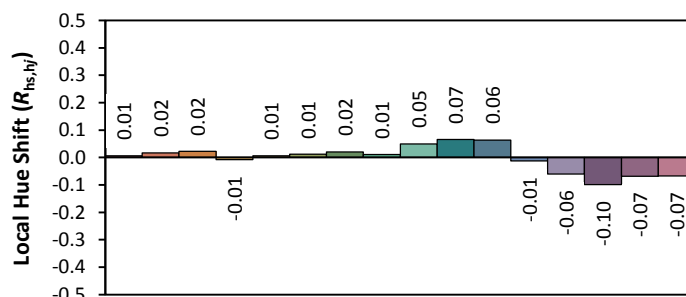
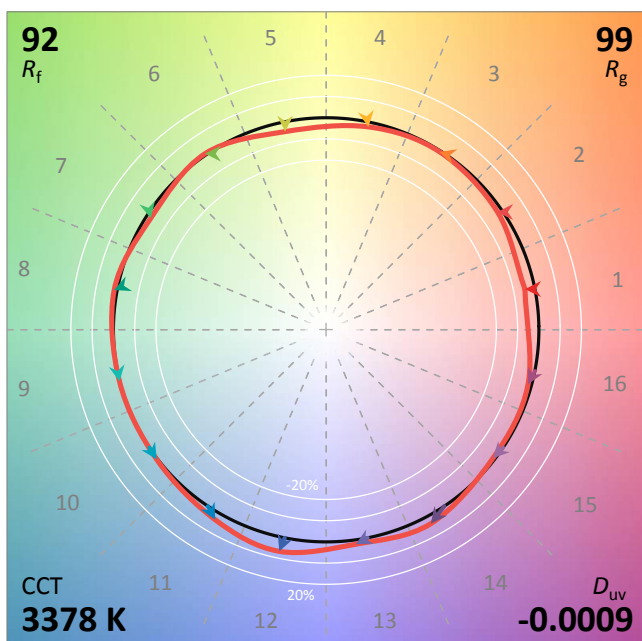
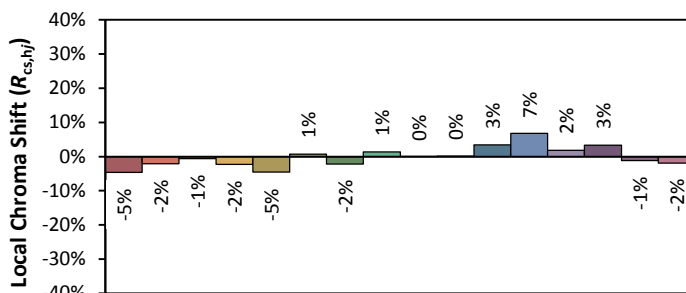
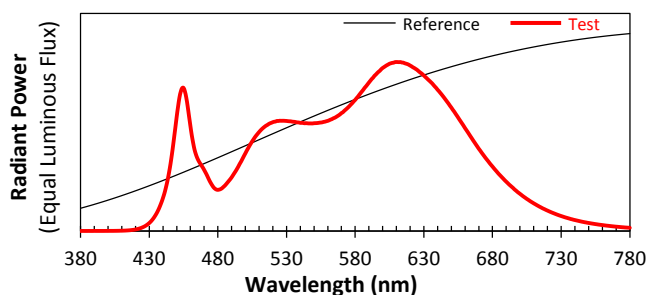
# ANSI/IES TM-30-18 Color Rendition Report

Source: LED Luminaire

Manufacturer: Vode Lighting

Date: 9/2/2020

Model: 707-Z2-48-Z-SO-359-H6-WH



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

$x$  0.4114  
 $y$  0.3917  
 $u'$  0.2393  
 $v'$  0.5126

CIE 13.3-1995  
(CRI)  
 $R_a$  95  
 $R_g$  62



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www.lightlaboratory.com

## Photometric Test Report

### IES INDOOR REPORT

PHOTOMETRIC FILENAME : L082011201.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L082011201  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUE DATE] 9/2/2020  
[MANUFAC] Vode Lighting  
[LUMCAT] 707-Z2-48-Z-SO-359-H6-WH  
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board, square 3572,  
[MORE] 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, 26.20W  
[TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3541
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	135
Total Luminaire Watts	26.2
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	2.40
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	2.08
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.13 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.23 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	6379	5832	5808
55	6328	5729	5531
65	6063	5516	5271
75	5623	5244	5394
85	5154	4967	5298

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L082011201.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>	324	324	324	324	324	324	324	324	324	324
<b>5</b>	340	340	339	339	338	337	335	334	332	330
<b>10</b>	376	376	375	374	371	369	365	362	358	353
<b>15</b>	414	414	412	410	406	402	396	390	383	376
<b>20</b>	452	451	449	445	440	434	426	417	407	396
<b>25</b>	489	488	485	480	473	465	454	442	429	414
<b>30</b>	524	523	519	513	504	493	480	465	448	430
<b>35</b>	556	555	550	542	532	518	502	485	464	443
<b>40</b>	583	582	576	567	555	539	521	500	477	452
<b>45</b>	604	602	596	586	572	554	534	510	484	457
<b>50</b>	616	614	608	597	582	562	540	515	487	457
<b>55</b>	619	616	610	599	583	563	539	513	483	452
<b>60</b>	611	609	602	591	575	555	531	504	473	441
<b>65</b>	594	592	585	574	559	539	516	488	458	425
<b>70</b>	568	566	560	550	535	516	494	467	437	405
<b>75</b>	535	534	528	518	505	487	466	441	413	382
<b>80</b>	499	498	493	484	472	455	436	412	385	356
<b>85</b>	461	460	456	448	437	422	404	382	356	330
<b>90</b>	426	424	420	413	403	389	373	352	330	304
<b>95</b>	399	398	394	388	379	366	351	333	312	287
<b>100</b>	378	376	373	367	359	347	335	317	296	274
<b>105</b>	357	356	353	348	339	330	317	301	282	260
<b>110</b>	338	337	334	330	322	312	299	284	267	247
<b>115</b>	320	319	316	311	304	295	283	268	251	233
<b>120</b>	300	299	296	292	285	276	265	251	235	218
<b>125</b>	279	279	276	272	265	257	246	233	218	202
<b>130</b>	258	257	255	251	244	236	227	215	201	184
<b>135</b>	236	235	233	229	223	216	206	194	178	162
<b>140</b>	212	211	209	206	200	193	183	169	154	140
<b>145</b>	188	187	185	182	177	168	155	143	131	120
<b>150</b>	162	161	160	157	150	138	129	119	111	103
<b>155</b>	136	135	134	129	119	111	103	98	93	86
<b>160</b>	108	108	106	97	90	84	81	77	72	65
<b>165</b>	78	78	71	66	62	60	59	56	50	46
<b>170</b>	49	46	40	37	38	38	37	35	33	30
<b>175</b>	22	18	17	19	20	19	19	19	18	17
<b>180</b>	0	0	0	0	0	0	0	0	0	0

Vert. 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>	324	324	324	324	324	324	324	324	324
<b>5</b>	328	326	324	323	322	322	323	323	323
<b>10</b>	348	343	337	332	326	320	317	317	317
<b>15</b>	367	359	350	341	332	323	313	309	310
<b>20</b>	385	373	360	347	335	322	309	299	299
<b>25</b>	399	383	367	350	334	318	302	286	285
<b>30</b>	411	392	372	351	331	311	292	273	268
<b>35</b>	420	397	373	349	326	302	280	259	250
<b>40</b>	426	399	372	344	317	291	266	242	231
<b>45</b>	428	397	367	336	307	278	250	225	210
<b>50</b>	425	392	359	326	294	263	233	206	188
<b>55</b>	418	383	348	313	279	246	214	186	166
<b>60</b>	406	370	334	297	262	228	195	165	144



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011201.IES**

**CANDELA TABULATION - (Cont.)**

<b>65</b>	390	353	317	280	244	208	175	145	121
<b>70</b>	370	334	298	260	224	188	154	123	98
<b>75</b>	343	314	278	240	204	168	134	102	82
<b>80</b>	324	290	255	218	183	148	114	83	56
<b>85</b>	298	265	232	197	162	127	95	66	37
<b>90</b>	274	243	210	175	142	107	78	45	19
<b>95</b>	260	230	199	166	134	102	75	41	16
<b>100</b>	248	220	191	160	130	99	74	40	15
<b>105</b>	237	210	183	153	124	94	67	37	14
<b>110</b>	224	200	173	145	118	90	64	33	14
<b>115</b>	211	188	164	138	112	86	59	30	13
<b>120</b>	198	176	153	129	105	80	53	26	12
<b>125</b>	184	163	141	118	95	72	46	23	12
<b>130</b>	165	145	125	105	84	62	39	20	11
<b>135</b>	145	128	110	92	73	53	33	18	11
<b>140</b>	125	111	96	79	62	45	27	16	11
<b>145</b>	109	97	82	66	51	36	23	14	10
<b>150</b>	94	81	68	55	42	30	20	13	10
<b>155</b>	75	65	55	44	35	26	18	12	10
<b>160</b>	57	50	42	35	28	22	16	11	10
<b>165</b>	41	36	32	27	22	17	13	10	10
<b>170</b>	28	25	22	19	16	13	11	10	10
<b>175</b>	16	15	13	12	11	10	10	9	9
<b>180</b>	0	0	0	0	0	0	0	0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011201.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	137.11	N.A.	3.90
0-30	323.77	N.A.	9.10
0-40	592.13	N.A.	16.70
0-60	1315.00	N.A.	37.10
0-80	2084.5	N.A.	58.90
0-90	2411.16	N.A.	68.10
10-90	2379.02	N.A.	67.20
20-40	455.02	N.A.	12.80
20-50	793.59	N.A.	22.40
40-70	1118.9	N.A.	31.60
60-80	769.50	N.A.	21.70
70-80	373.47	N.A.	10.50
80-90	326.66	N.A.	9.20
90-110	526.77	N.A.	14.90
90-120	732.55	N.A.	20.70
90-130	893.67	N.A.	25.20
90-150	1078.91	N.A.	30.50
90-180	1130.21	N.A.	31.90
110-180	603.44	N.A.	17.00
0-180	3541.36	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	32.14
10-20	104.97
20-30	186.67
30-40	268.36
40-50	338.56
50-60	384.31
60-70	396.03
70-80	373.47
80-90	326.66
90-100	281.16
100-110	245.61
110-120	205.78
120-130	161.12
130-140	114.20
140-150	71.05
150-160	36.62
160-170	12.93
170-180	1.74

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011201.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	111	111	111	111	105	105	105	105	93	93	93	83	83	83	73	73	73	68
1	97	91	85	80	91	85	80	75	75	71	67	66	62	59	57	54	52	48
2	86	76	68	61	81	72	64	58	63	57	52	55	50	46	47	44	40	36
3	78	66	56	49	72	62	53	46	54	47	41	47	41	37	40	36	32	28
4	70	57	47	40	65	54	45	38	47	40	34	41	35	30	35	30	26	23
5	64	50	40	33	60	47	38	32	41	34	28	36	30	25	31	26	22	19
6	59	45	35	28	55	42	33	27	37	29	24	32	26	21	28	23	19	16
7	54	40	31	24	50	38	29	23	33	26	21	29	23	18	25	20	16	14
8	50	36	27	21	47	34	26	20	30	23	18	26	20	16	23	18	14	12
9	47	33	24	19	43	31	23	18	27	21	16	24	18	14	21	16	12	10
10	43	30	22	16	41	28	21	16	25	19	14	22	17	13	19	15	11	9

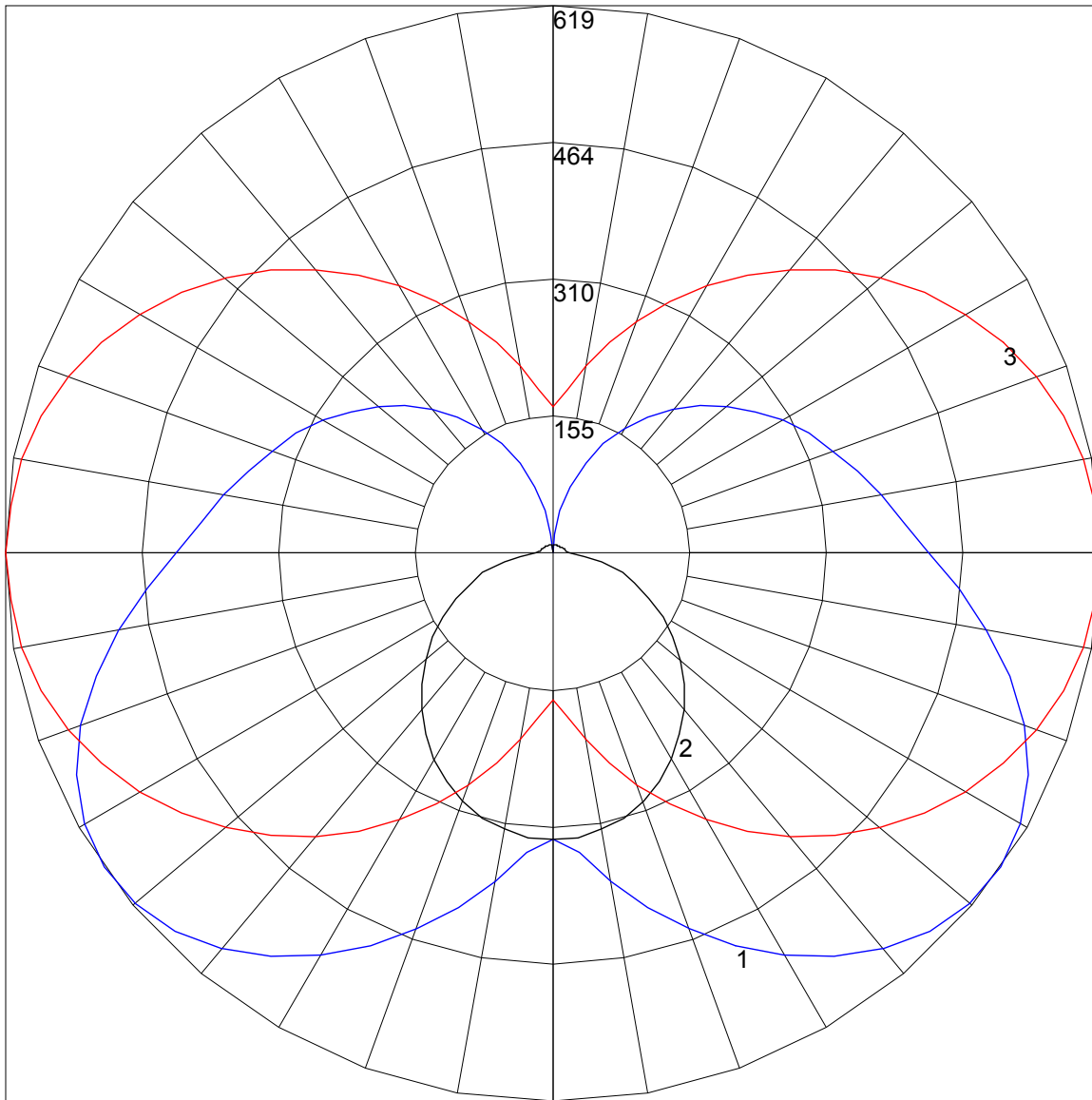
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L082011201.IES**

**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	19.5	20.8	20.3	21.6	22.5	11.7	12.9	12.5	13.7	14.7
	3H	22.9	24.0	23.6	24.8	25.8	13.1	14.2	13.8	15.0	16.0
	4H	24.5	25.6	25.3	26.4	27.4	13.5	14.6	14.3	15.4	16.4
	6H	26.3	27.3	27.1	28.1	29.1	13.9	14.9	14.7	15.7	16.7
	8H	27.2	28.1	28.0	29.0	30.0	14.0	14.9	14.8	15.8	16.8
	12H	28.1	29.1	28.9	29.9	31.0	14.0	14.9	14.8	15.8	16.9
4H	2H	19.7	20.8	20.5	21.6	22.6	14.3	15.4	15.1	16.2	17.2
	3H	23.2	24.2	24.0	25.0	26.1	16.0	16.9	16.8	17.8	18.8
	4H	25.0	25.9	25.9	26.8	27.8	16.6	17.5	17.4	18.3	19.4
	6H	27.0	27.7	27.8	28.6	29.7	17.1	17.9	17.9	18.7	19.8
	8H	28.0	28.7	28.8	29.6	30.6	17.2	18.0	18.1	18.8	19.9
	12H	29.1	29.7	29.9	30.6	31.7	17.3	18.0	18.2	18.9	20.0
8H	4H	25.2	25.9	26.0	26.7	27.8	18.5	19.2	19.3	20.1	21.2
	6H	27.2	27.8	28.1	28.7	29.8	19.3	19.9	20.1	20.8	21.9
	8H	28.3	28.9	29.2	29.8	30.9	19.6	20.1	20.4	21.0	22.1
	12H	29.6	30.1	30.4	31.0	32.1	19.8	20.3	20.6	21.2	22.3
12H	4H	25.1	25.8	26.0	26.7	27.8	19.1	19.7	19.9	20.6	21.7
	6H	27.2	27.8	28.1	28.7	29.8	20.0	20.6	20.9	21.5	22.6
	8H	28.4	28.9	29.3	29.8	30.9	20.5	21.0	21.3	21.9	23.0

Maximum UGR = 32.1

POLAR GRAPH



Maximum Candela = 619 Located At Horizontal Angle = 0, Vertical Angle = 55

# 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 (55) (Through Max. Cd.)