

IES Report

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

707-Z2-4-48-XX-XX-X-0-Z-SO-359-F9-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	60	62	63	63
Total Lumens, 4' rail length (1219mm)	1542	1591	1624	1640
Lumens per foot (305mm)	386	398	406	410
Input Power (W), 4' rail length (1219mm)	26.1	26.1	26.1	26.1
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: L082011212



Report No: L082011212

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-F9-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

Manufacturer:	Vode Lighting
Model Number:	707-Z2-48-Z-SO-359-F9-WH
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	1623.64
Efficacy:	62.19
Color Redering Index:	94.5
Correlated Color Temperature:	3257
Input Voltage (VAC/60Hz):	120.05
Input Current (Amp):	0.2190
Input Power (W):	26.11
Input Power Factor:	0.9930
Current ATHD (%):	9.0%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	2:25

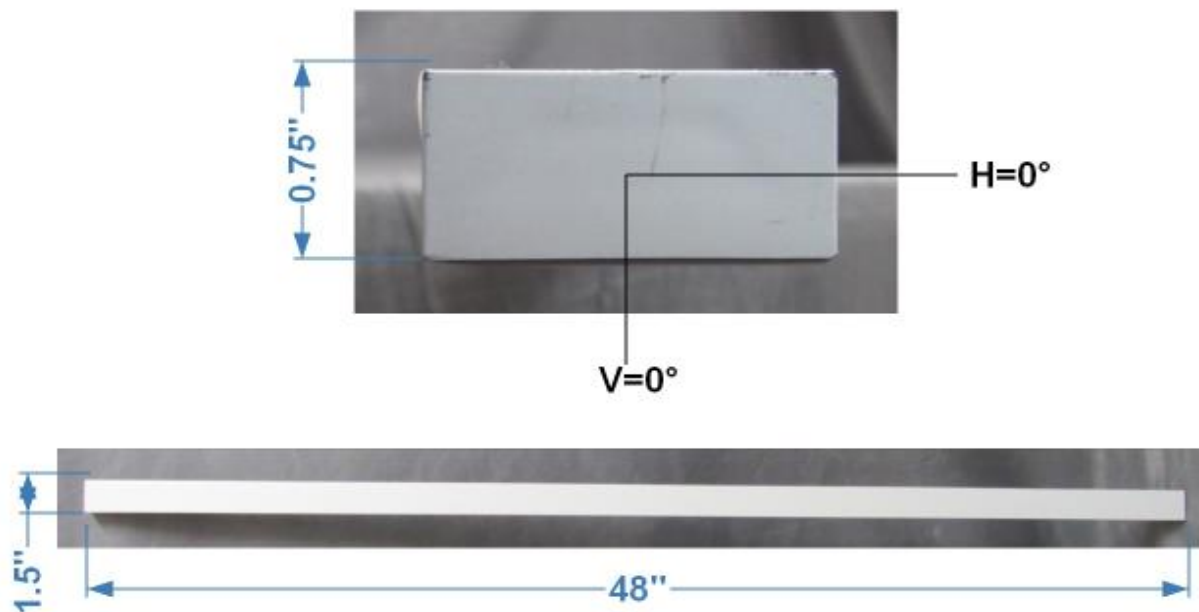
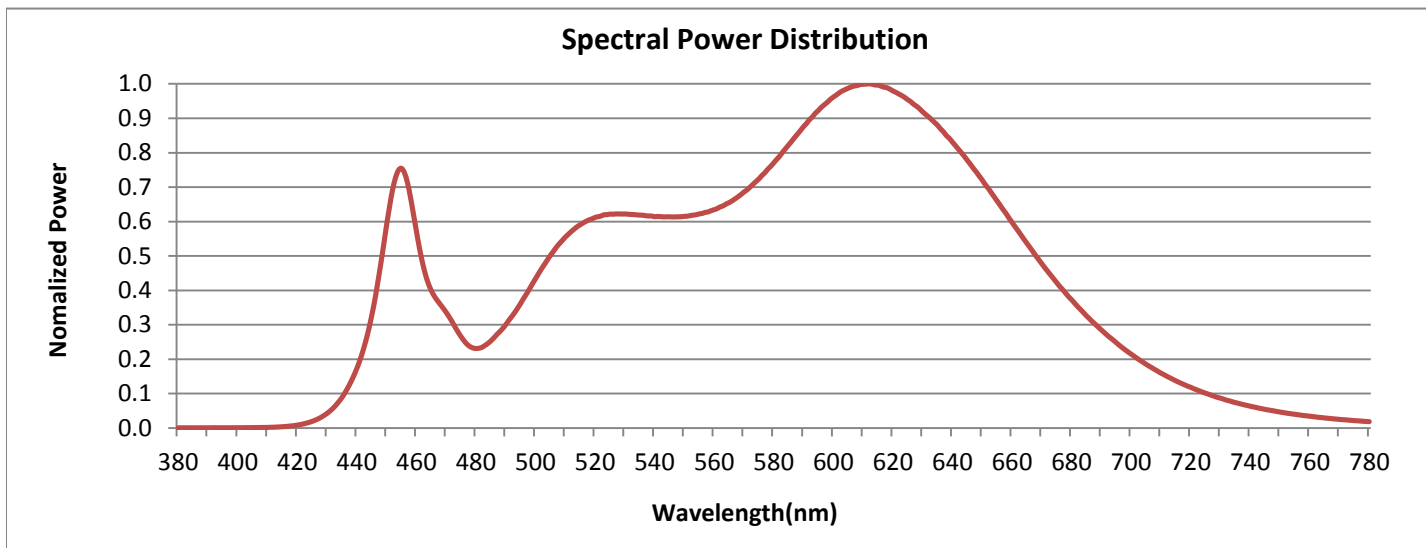


FIG. 1 LUMINAIRE

Colorimetry Test Results

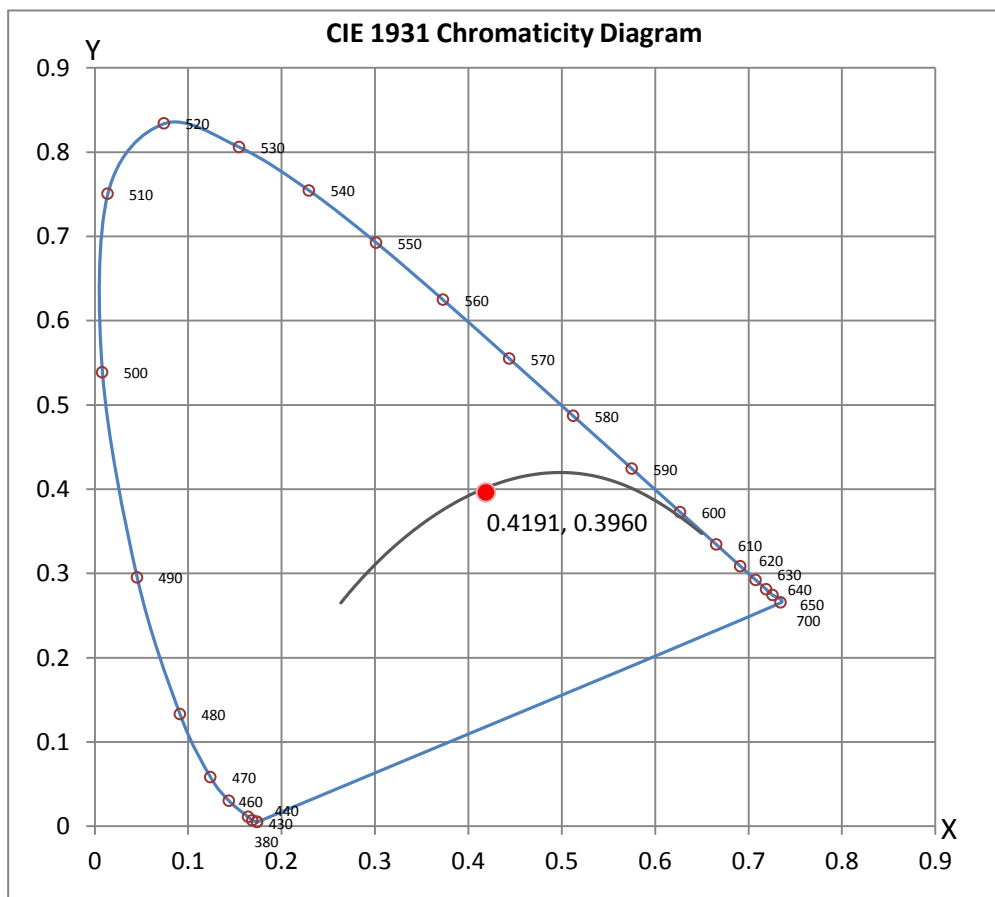


CRI & CCT

x	0.4191
y	0.3960
u'	0.2425
v'	0.5155
CRI	94.50
CCT	3257
Duv	-0.00049

R Values

R1	96.41
R2	98.86
R3	98.33
R4	97.53
R5	96.97
R6	95.99
R7	90.83
R8	81.06
R9	57.43
R10	97.34
R11	96.74
R12	80.19
R13	97.88
R14	99.52
R15	90.19





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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*

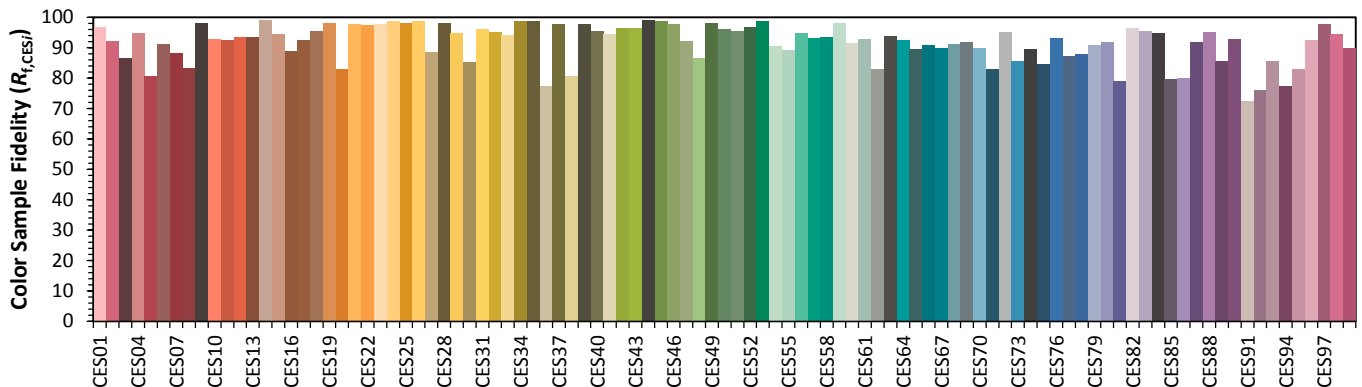
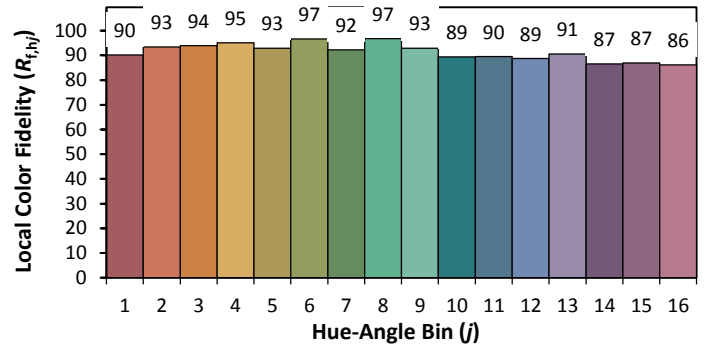
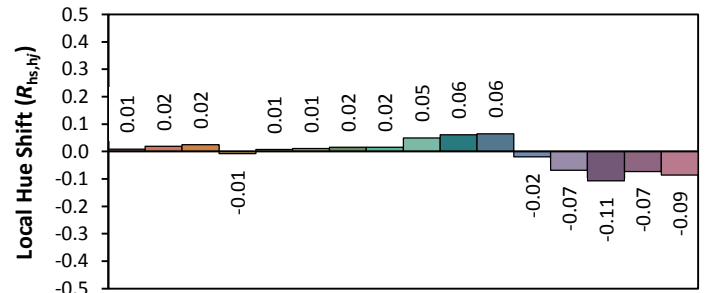
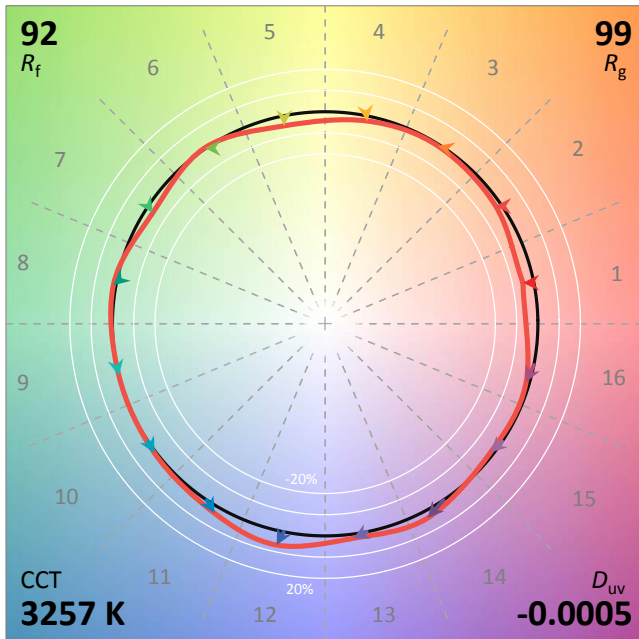
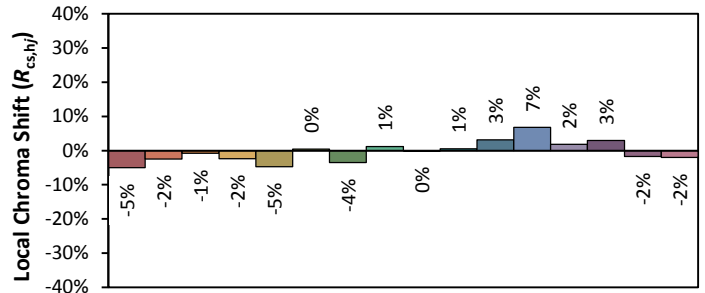
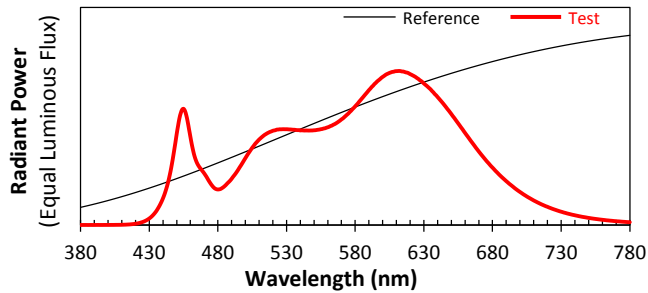
ANSI/IES TM-30-18 Color Rendition Report

Source: LED Luminaire

Manufacturer: Vode Lighting

Date: 9/4/2020

Model: 707-Z2-48-Z-SO-359-F9-WH



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

x 0.4191
y 0.3960
u' 0.2425
v' 0.5155

CIE 13.3-1995
(CRI)

R_a 95
 R_g 57



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L082011212.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L082011212
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUE DATE] 9/2/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-Z-SO-359-F9-WH
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board,
[MORE] square 3519, side 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] 120.05VAC, 26.11W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1624
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	62
Total Luminaire Watts	26.11
Ballast Factor	1.00
CIE Type	General Diffuse
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.13 ft
Luminous Width (90-270)	3.99 ft
Luminous Height	0.05 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3685	2523	153
55	5155	3517	161
65	7026	4865	160
75	9424	6823	205
85	13040	10332	331

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011212.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>
0	7.27	7.27	7.27	7.27	7.27	7.27	7.27	7.27	7.27	7.27
5	15.01	15.01	14.92	14.67	14.38	14.00	13.58	12.99	12.41	11.82
10	30.34	30.30	30.01	29.55	28.75	27.83	26.70	25.40	23.93	22.34
15	46.94	46.73	46.23	45.35	44.09	42.50	40.66	38.43	35.96	33.32
20	64.96	64.71	63.92	62.66	60.77	58.43	55.66	52.43	48.74	44.89
25	84.50	84.16	83.15	81.31	78.75	75.57	71.80	67.31	62.37	57.17
30	105.37	104.86	103.40	101.09	97.78	93.59	88.73	82.94	76.62	69.99
35	127.41	126.83	124.98	122.05	117.77	112.62	106.58	99.42	91.54	83.36
40	150.38	149.58	147.28	143.63	138.44	132.11	124.65	116.05	106.58	96.78
45	174.02	173.01	170.33	165.85	159.64	151.93	143.21	133.03	121.80	110.23
50	197.91	196.82	193.63	188.31	180.98	172.01	161.82	149.88	137.01	123.68
55	220.96	219.83	215.97	209.90	201.39	191.12	179.38	165.85	151.22	136.34
60	242.42	240.99	236.68	229.89	220.29	208.97	195.86	180.81	164.84	148.03
65	261.36	259.81	255.08	247.66	237.39	224.86	210.36	194.47	177.04	158.89
70	275.95	274.40	269.45	261.62	251.05	237.60	222.22	205.08	186.97	167.77
75	286.51	284.88	279.81	271.93	260.94	247.11	231.52	213.63	194.47	174.44
80	292.97	291.37	286.51	278.46	267.48	253.65	237.85	219.70	199.88	179.64
85	295.82	294.26	289.45	281.65	270.75	257.05	241.33	223.14	203.23	182.86
90	296.15	294.64	289.95	282.40	271.30	257.97	242.42	224.36	204.62	184.20
95	295.23	293.76	289.11	281.48	270.84	257.55	242.25	224.31	204.62	184.46
100	292.71	291.16	286.55	279.01	268.32	255.41	240.24	222.60	203.48	183.20
105	287.85	286.30	281.73	274.19	263.96	250.93	236.09	219.28	200.38	180.85
110	280.39	278.88	274.40	267.19	257.17	244.64	230.27	213.58	195.77	177.00
115	269.91	268.41	264.13	257.30	247.78	235.84	222.09	206.12	188.86	170.83
120	256.67	255.20	251.26	244.77	235.92	224.52	211.61	196.61	180.14	163.12
125	240.74	239.53	235.80	229.93	221.59	211.15	199.17	185.34	170.04	154.15
130	222.55	221.63	218.19	212.83	205.16	195.86	184.96	172.22	156.88	139.19
135	202.69	201.72	198.79	193.84	187.10	178.50	168.44	153.06	136.97	122.01
140	180.64	179.76	177.16	172.80	166.64	158.76	145.27	131.56	118.32	105.49
145	157.67	157.00	154.82	151.22	145.73	133.62	122.09	110.98	100.55	91.20
150	134.79	134.24	132.32	128.96	119.03	109.22	100.59	92.46	85.92	78.80
155	111.57	111.11	109.39	102.89	93.59	86.38	80.09	75.61	69.62	63.12
160	85.50	85.04	82.02	73.18	67.14	62.78	60.73	58.22	53.98	47.99
165	60.69	60.02	53.31	49.71	46.90	46.52	44.55	41.28	37.93	35.42
170	38.48	34.16	31.06	30.01	31.64	31.98	31.35	30.64	29.34	27.91
175	22.21	18.65	19.49	21.50	22.38	22.38	22.13	21.92	21.50	20.87
180	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>
0	7.27	7.27	7.27	7.27	7.27	7.27	7.27	7.27	7.27
5	11.07	10.31	9.64	8.93	8.30	7.71	7.38	7.08	7.04
10	20.50	18.57	16.64	14.54	12.49	10.35	8.63	7.46	6.96
15	30.47	27.41	24.23	20.91	17.52	13.87	10.56	7.92	6.87
20	40.78	36.38	31.98	27.29	22.63	17.69	12.99	8.68	6.79
25	51.51	45.68	39.73	33.70	27.62	21.50	15.34	9.51	6.54
30	62.83	55.37	47.82	40.19	32.61	25.19	17.73	10.56	6.20
35	74.48	65.47	56.20	46.90	37.81	28.84	20.16	11.65	6.12
40	86.17	75.32	64.46	53.52	42.88	32.31	22.30	12.66	5.70
45	97.82	85.33	72.89	60.06	47.91	35.54	24.39	13.41	5.28
50	109.47	95.18	81.06	66.51	52.81	38.98	26.36	14.38	5.03
55	120.54	104.32	88.56	72.47	57.00	42.00	28.00	15.13	4.53
60	130.77	113.20	95.60	77.75	61.11	44.85	29.67	15.84	4.02

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011212.IES

CANDELA TABULATION - (Cont.)

65	139.90	120.92	102.01	82.73	64.88	47.36	31.10	16.14	3.35
70	147.49	127.41	107.38	86.97	68.07	49.83	32.40	16.51	3.27
75	153.36	132.78	111.49	90.49	70.71	51.93	33.36	17.06	2.68
80	157.72	136.42	114.92	93.55	73.10	53.31	34.41	17.56	2.10
85	161.03	139.11	117.19	95.43	74.23	53.98	34.91	17.56	1.59
90	162.70	140.36	118.23	96.27	74.90	54.40	35.12	17.52	1.17
95	162.66	140.74	118.99	96.73	75.57	54.36	35.42	17.69	1.26
100	162.12	140.36	118.57	96.10	75.19	54.49	35.21	16.60	1.68
105	159.81	138.60	117.19	95.22	74.60	54.15	33.74	15.51	2.43
110	156.21	135.71	114.84	93.51	73.26	52.52	33.24	14.29	3.19
115	151.01	131.60	111.65	90.70	70.45	51.05	32.06	13.12	3.86
120	144.43	126.03	106.50	86.88	67.44	49.37	29.38	12.20	4.78
125	136.51	116.60	97.66	79.00	61.36	43.38	25.86	11.48	5.62
130	121.04	104.07	86.88	70.83	54.95	38.14	22.55	11.07	6.29
135	106.88	91.66	77.66	62.95	47.40	33.28	19.62	10.86	6.96
140	93.09	81.02	68.28	53.40	40.53	27.96	17.90	10.56	7.54
145	82.15	71.13	56.50	44.59	34.16	23.30	16.64	10.35	8.05
150	69.32	57.21	47.44	38.35	28.92	22.59	16.68	11.32	9.47
155	54.32	47.03	39.61	31.85	26.74	21.63	16.35	12.45	11.07
160	42.29	36.38	31.98	28.33	24.52	20.12	15.97	13.24	12.32
165	32.78	30.43	27.70	24.94	21.79	18.32	15.55	13.96	13.41
170	26.70	25.27	23.30	21.17	18.82	16.93	15.55	14.88	14.59
175	20.03	19.11	18.15	17.31	16.68	16.14	15.80	15.59	15.51
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011212.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	10.37	N.A.	0.60
0-30	35.16	N.A.	2.20
0-40	84.07	N.A.	5.20
0-60	279.36	N.A.	17.20
0-80	601.78	N.A.	37.10
0-90	788.40	N.A.	48.60
10-90	787.02	N.A.	48.50
20-40	73.70	N.A.	4.50
20-50	153.78	N.A.	9.50
40-70	343.95	N.A.	21.20
60-80	322.42	N.A.	19.90
70-80	173.76	N.A.	10.70
80-90	186.62	N.A.	11.50
90-110	365.10	N.A.	22.50
90-120	521.92	N.A.	32.10
90-130	648.30	N.A.	39.90
90-150	794.31	N.A.	48.90
90-180	835.24	N.A.	51.40
110-180	470.14	N.A.	29.00
0-180	1623.64	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	1.37
10-20	9.00
20-30	24.79
30-40	48.90
40-50	80.09
50-60	115.20
60-70	148.66
70-80	173.76
80-90	186.62
90-100	187.50
100-110	177.59
110-120	156.82
120-130	126.38
130-140	90.20
140-150	55.81
150-160	28.61
160-170	10.47
170-180	1.85

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	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49
1	91	85	79	73	83	77	72	67	63	59	55	51	48	45	39	37	34	29
2	81	71	62	55	73	64	57	50	52	46	41	41	37	33	31	28	25	19
3	72	60	51	43	65	55	46	39	44	38	32	35	29	25	26	22	18	14
4	65	52	42	35	59	47	39	32	38	31	26	30	24	20	22	18	14	10
5	60	46	36	29	54	41	33	26	33	26	21	26	21	16	19	15	12	8
6	54	40	31	24	49	37	28	22	30	23	18	23	18	14	17	13	9	6
7	50	36	27	20	45	33	24	19	26	20	15	21	15	11	15	11	8	5
8	46	32	24	18	42	29	22	16	24	17	13	19	14	10	14	10	7	4
9	43	29	21	15	39	27	19	14	22	15	11	17	12	8	13	9	6	3
10	40	27	19	13	36	24	17	12	20	14	10	16	11	7	12	8	5	3

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011212.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

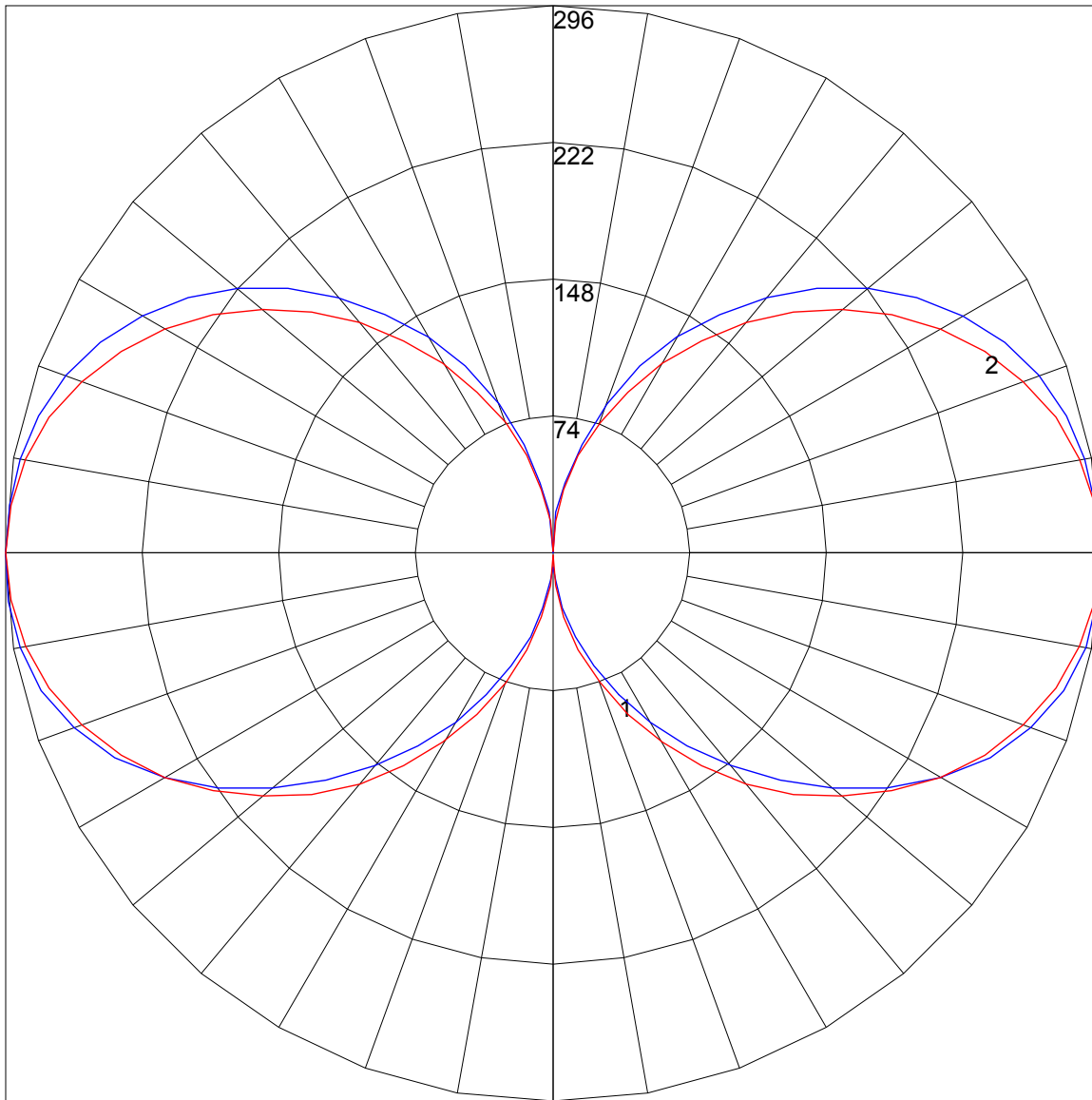
X=2H	Y=2H	16.5	17.5	17.4	18.5	19.8	6.0	7.1	7.0	8.0	9.3
	3H	21.0	22.0	22.0	23.0	24.3	7.7	8.7	8.6	9.6	10.9
	4H	23.3	24.2	24.2	25.2	26.5	8.3	9.2	9.2	10.2	11.5
	6H	25.7	26.5	26.6	27.5	28.8	8.7	9.6	9.7	10.6	11.9
	8H	26.9	27.8	27.9	28.8	30.1	8.9	9.7	9.8	10.7	12.0
	12H	28.3	29.1	29.3	30.1	31.4	8.9	9.7	9.9	10.7	12.1

UGR Viewed Endwise

4H	2H	16.8	17.8	17.8	18.8	20.0	11.3	12.3	12.3	13.2	14.5
	3H	21.6	22.4	22.6	23.5	24.8	13.5	14.3	14.4	15.3	16.6
	4H	24.1	24.9	25.1	25.9	27.2	14.3	15.1	15.3	16.1	17.4
	6H	26.7	27.4	27.7	28.4	29.8	14.9	15.6	15.9	16.6	17.9
	8H	28.1	28.8	29.1	29.8	31.1	15.1	15.7	16.1	16.8	18.1
	12H	29.6	30.2	30.6	31.3	32.6	15.2	15.8	16.2	16.8	18.2
8H	4H	24.3	25.0	25.3	26.0	27.3	17.7	18.3	18.6	19.3	20.7
	6H	27.2	27.7	28.2	28.8	30.1	18.7	19.3	19.7	20.3	21.7
	8H	28.7	29.2	29.7	30.3	31.6	19.1	19.6	20.1	20.7	22.0
	12H	30.5	30.9	31.5	32.0	33.4	19.4	19.9	20.4	20.9	22.3
12H	4H	24.3	24.9	25.3	25.9	27.3	18.7	19.3	19.7	20.4	21.7
	6H	27.2	27.7	28.2	28.8	30.1	20.1	20.6	21.1	21.6	23.0
	8H	28.8	29.3	29.9	30.3	31.7	20.7	21.1	21.7	22.2	23.6

Maximum UGR = 33.4

POLAR GRAPH



Maximum Candela = 296.15 Located At Horizontal Angle = 0, Vertical Angle = 90
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (90) (Through Max. Cd.)