

IES Report

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

707-Z2-4-48-XX-XX-X-0-Z-SO-359-H9-X-BL-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	115	118	121	122
Total Lumens, 4' rail length (1219mm)	2985	3080	3142	3174
Lumens per foot (305mm)	746	770	786	793
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: L082011203



Report No: L082011203

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-H9-BL

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

Manufacturer:	Vode Lighting
Model Number:	707-Z2-48-Z-SO-359-H9-BL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	3142.41
Efficacy:	120.07
Color Redering Index:	95.1
Correlated Color Temperature:	3390
Input Voltage (VAC/60Hz):	120.05
Input Current (Amp):	0.2195
Input Power (W):	26.17
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):	2:20

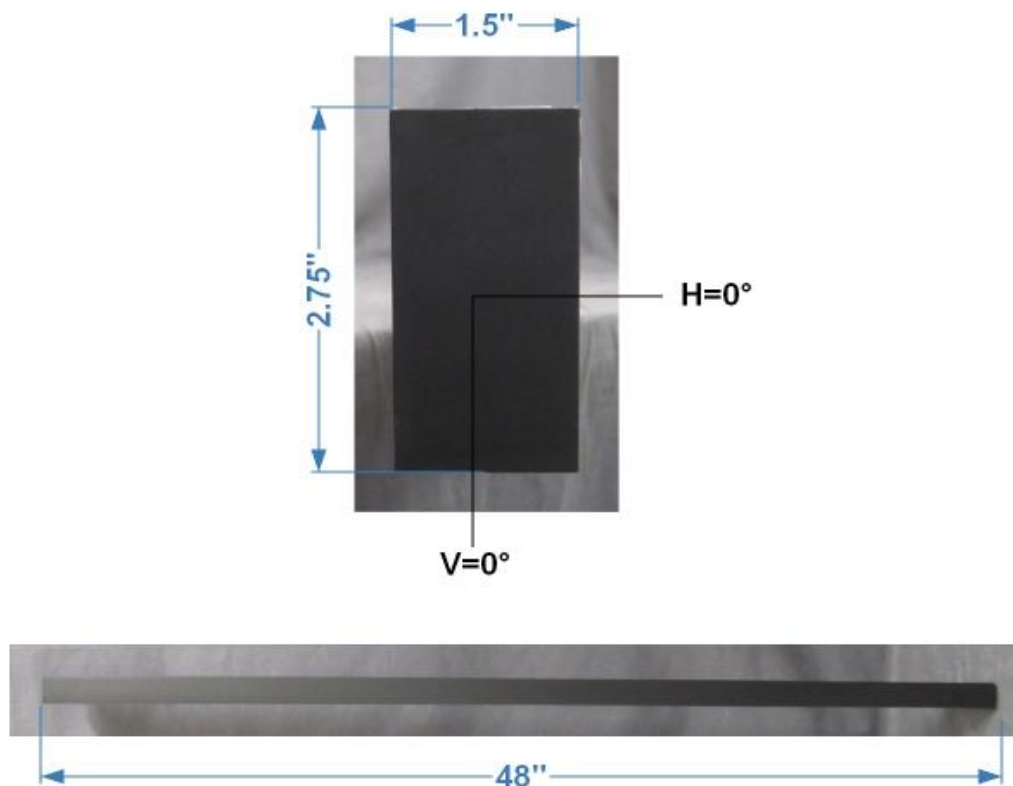
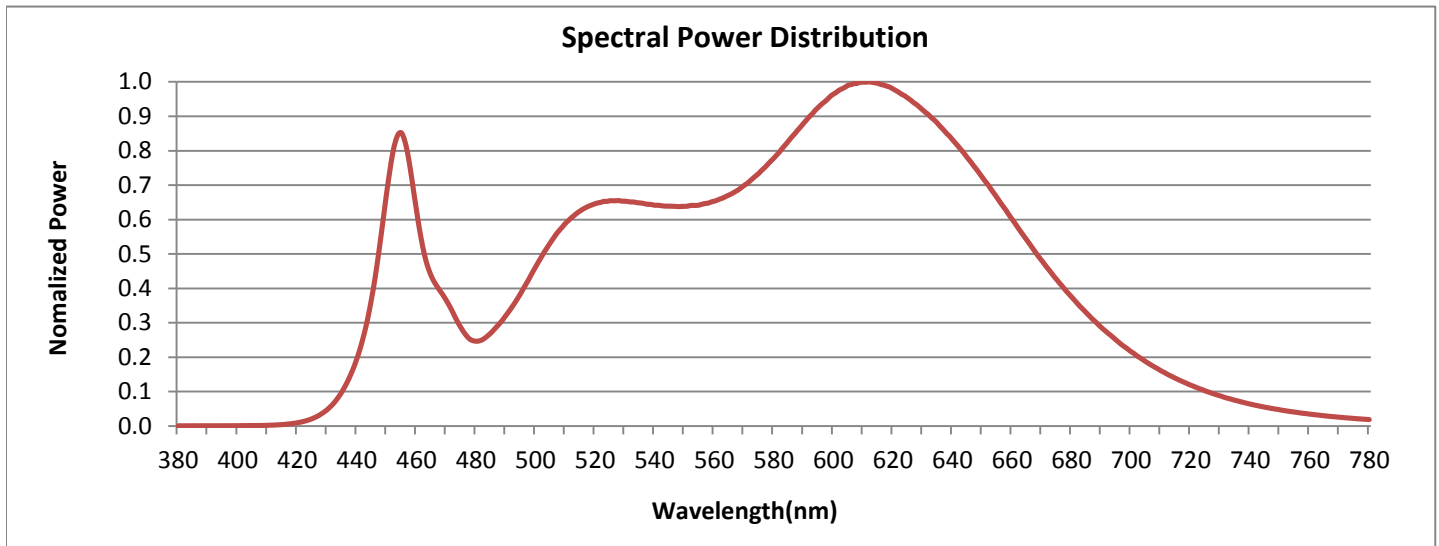


FIG. 1 LUMINAIRE

Colorimetry Test Results

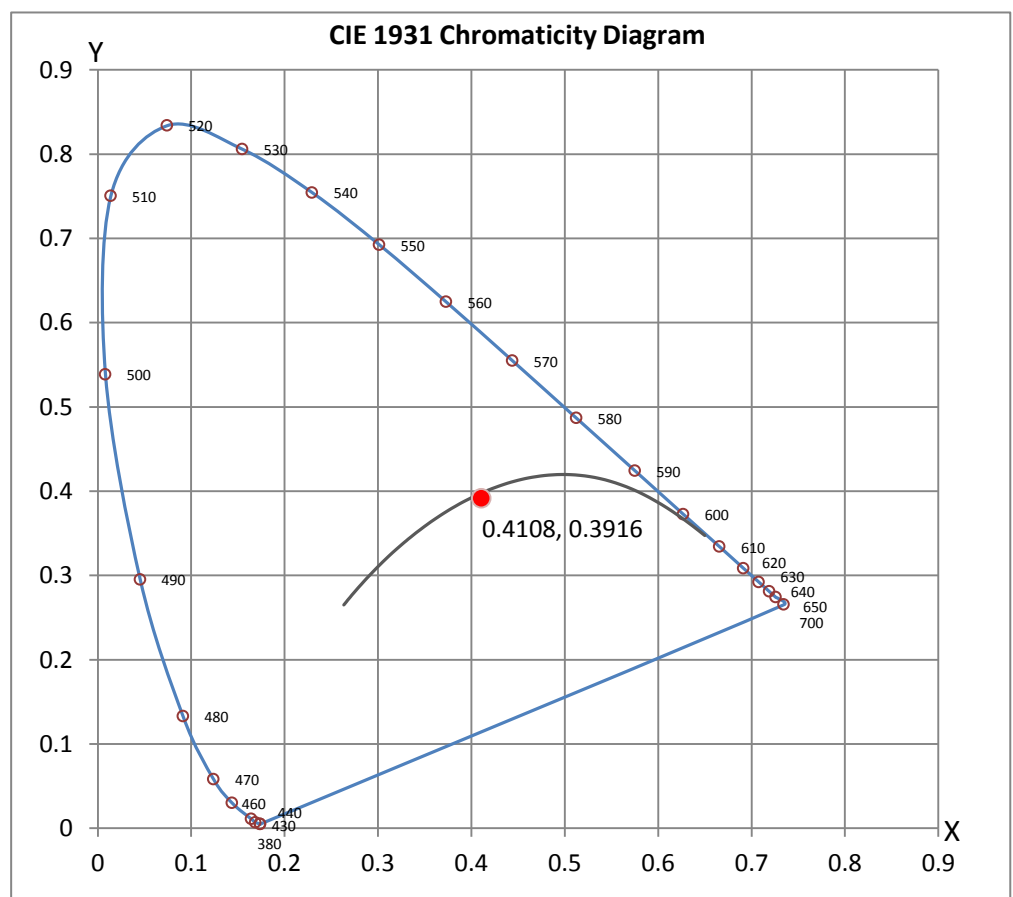


CRI & CCT

x	0.4108
y	0.3916
u'	0.2389
v'	0.5124
CRI	95.10
CCT	3390
Duv	-0.00078

R Values

R1	97.13
R2	99.03
R3	98.68
R4	98.23
R5	97.50
R6	95.88
R7	91.67
R8	82.95
R9	61.20
R10	97.71
R11	95.95
R12	79.13
R13	98.57
R14	99.34
R15	91.51





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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*

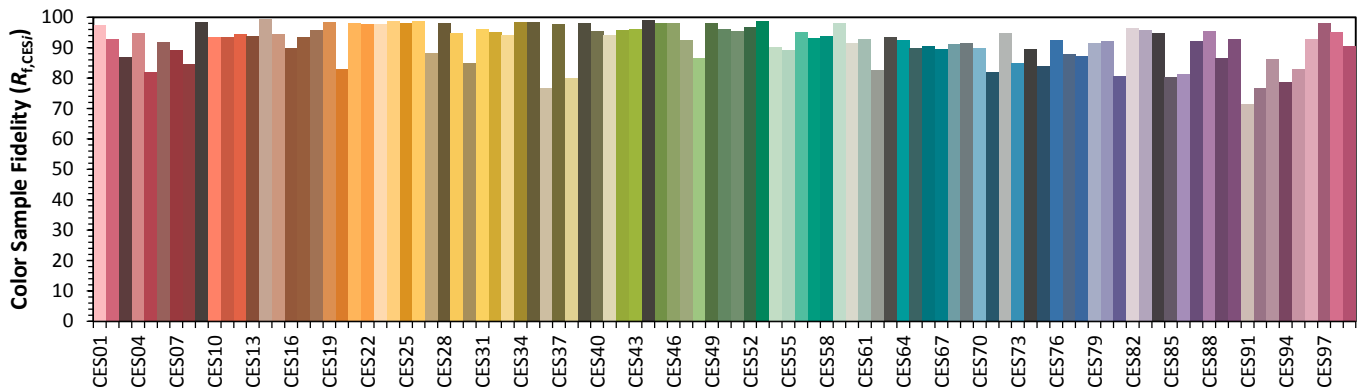
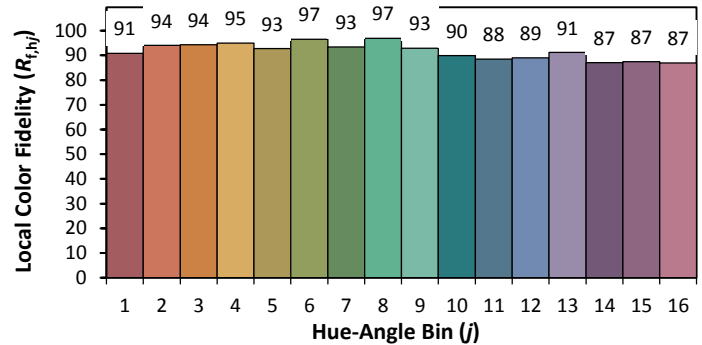
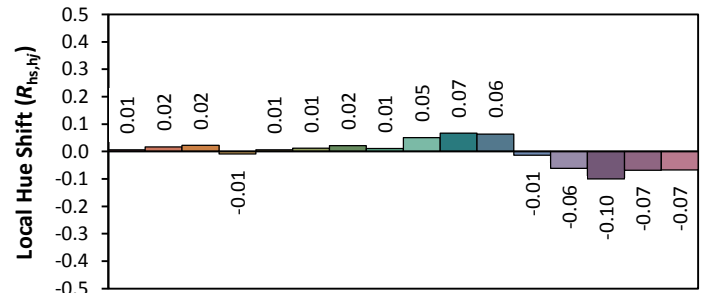
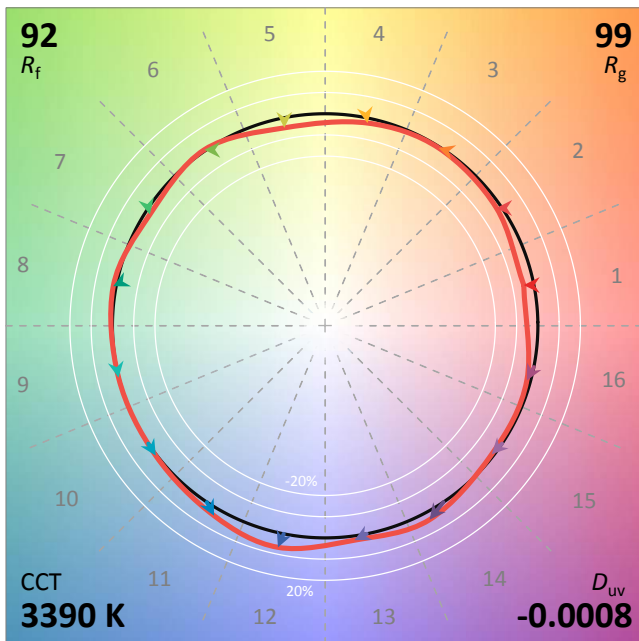
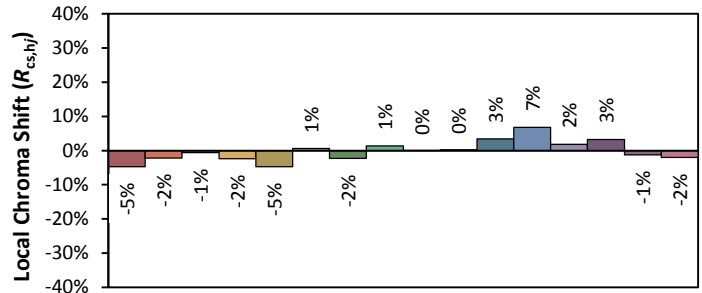
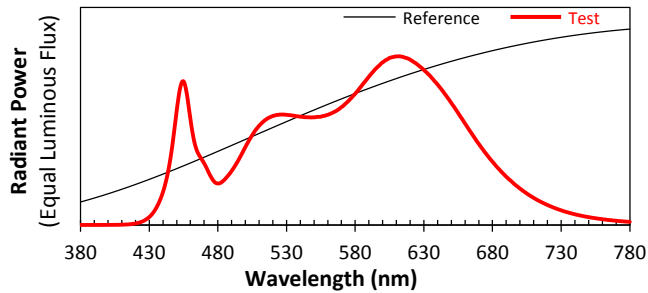
ANSI/IES TM-30-18 Color Rendition Report

Source: LED Luminaire

Manufacturer: Vode Lighting

Date: 9/2/2020

Model: 707-Z2-48-Z-SO-359-H9-BL



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

x 0.4108

y 0.3915

u' 0.2389

v' 0.5124

CIE 13.3-1995
(CRI)

R_a 95

R_g 61



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L082011203.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L082011203
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUE DATE] 9/2/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-Z-SO-359-H9-BL
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board, square 3572,
[MORE] side diffuse black 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, 26.17W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3142
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	120
Total Luminaire Watts	26.17
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	0.22 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	5034	3880	354
55	5591	4424	309
65	5885	4833	287
75	5988	5156	262
85	6060	5553	477

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011203.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	18.47	18.47	18.47	18.47	18.47	18.47	18.47	18.47	18.47	18.47
5	38.06	37.93	37.60	36.84	35.79	34.54	33.03	31.22	29.26	27.08
10	86.42	86.05	85.04	83.32	80.81	77.79	74.14	69.78	64.96	59.85
15	139.06	138.52	136.72	133.83	129.63	124.40	118.23	111.03	102.89	94.39
20	195.14	194.30	191.66	187.35	181.19	173.56	164.63	154.24	142.42	130.10
25	253.07	251.93	248.33	242.59	234.25	224.23	212.28	198.20	182.95	166.64
30	310.23	308.68	304.32	297.16	286.97	274.15	258.97	241.62	222.76	202.48
35	364.97	363.46	357.97	349.04	337.02	321.38	304.24	283.12	260.15	235.63
40	416.44	414.38	408.06	397.96	383.62	365.10	345.69	321.38	295.27	267.36
45	462.21	459.94	452.65	441.25	425.11	405.58	382.15	356.59	326.79	295.82
50	500.18	497.58	489.70	477.63	460.82	438.90	413.55	384.59	353.36	318.07
55	528.51	526.04	518.16	505.54	487.44	464.64	438.40	407.51	370.25	338.40
60	546.78	544.19	536.26	523.36	504.79	482.37	455.46	423.86	388.48	352.52
65	555.33	552.74	544.73	532.20	514.60	491.42	464.68	433.29	399.13	359.56
70	554.75	552.32	544.86	532.74	515.60	493.64	467.70	436.64	401.73	361.87
75	546.87	544.56	537.69	526.25	509.82	489.28	464.43	434.54	400.72	361.20
80	533.96	531.78	525.24	514.60	499.59	479.77	455.79	428.13	396.78	358.14
85	518.28	516.36	510.28	500.51	486.47	467.86	445.78	418.87	387.90	353.07
90	501.35	499.42	493.89	484.80	471.34	453.99	433.08	407.60	378.13	345.94
95	483.83	482.07	476.71	467.78	455.08	439.03	418.95	394.85	367.36	335.80
100	466.57	464.89	459.57	451.18	439.49	423.65	404.28	381.44	355.04	327.21
105	449.05	447.50	442.68	434.54	422.89	407.72	389.45	367.15	339.66	314.72
110	431.02	429.47	424.61	416.82	405.21	390.75	373.14	352.02	328.34	301.39
115	411.66	410.15	405.29	397.58	386.64	372.35	355.00	336.26	313.29	287.73
120	390.54	389.15	384.54	377.04	366.52	352.65	336.64	318.03	295.31	270.88
125	367.23	365.72	361.49	354.16	344.06	332.28	316.73	298.04	276.54	253.61
130	341.50	340.16	336.55	330.23	320.59	308.26	293.47	276.08	256.54	232.65
135	315.18	313.88	309.98	303.49	294.68	283.07	269.33	251.22	228.50	205.16
140	284.25	283.12	279.43	273.64	265.47	254.83	238.90	217.73	197.11	177.12
145	251.05	249.96	246.82	241.41	234.12	219.95	202.10	184.37	167.31	150.76
150	215.76	214.80	212.12	207.51	196.53	180.47	166.18	152.10	139.82	128.88
155	178.88	178.08	175.57	169.24	154.07	142.33	131.90	124.31	116.10	106.62
160	140.41	139.69	137.26	124.52	114.55	106.71	102.52	97.57	90.74	81.18
165	101.09	100.59	91.66	84.37	79.13	77.58	75.02	70.75	63.62	57.63
170	62.78	58.17	50.88	47.49	47.95	47.99	46.15	43.21	40.15	36.93
175	27.66	21.84	21.84	23.89	25.23	24.77	24.06	23.05	21.75	20.29
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	18.47	18.47	18.47	18.47	18.47	18.47	18.47	18.47	18.47
5	24.73	22.34	20.54	19.15	18.19	17.90	17.98	18.02	17.94
10	54.15	48.20	42.04	35.46	28.84	22.17	18.19	17.69	17.60
15	84.96	75.15	65.17	54.57	44.01	33.15	22.55	17.02	17.18
20	116.60	102.69	88.60	73.77	59.10	44.22	29.67	17.14	16.60
25	148.87	130.60	112.03	92.42	73.81	54.86	36.46	19.07	16.43
30	180.10	157.42	134.50	110.52	87.85	66.35	42.58	21.71	15.68
35	209.35	182.95	155.79	127.62	101.76	75.06	49.33	24.90	14.08
40	237.05	205.83	175.15	144.47	114.13	83.32	54.70	27.83	12.99
45	262.45	228.13	193.51	157.63	124.14	92.84	62.49	29.63	12.74
50	283.20	246.44	208.76	169.83	133.45	98.12	65.30	31.69	10.56
55	300.22	260.65	220.50	180.43	141.79	103.73	68.69	33.70	9.22
60	313.67	272.51	230.85	188.19	147.20	106.79	70.87	34.37	7.96

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011203.IES

CANDELA TABULATION - (Cont.)

65	320.59	280.06	237.47	193.01	151.51	109.85	71.67	34.75	6.54
70	323.60	283.54	240.45	196.95	154.19	113.08	77.58	36.46	5.20
75	326.08	284.63	241.83	198.29	155.96	112.70	78.21	36.67	3.94
80	324.15	283.58	241.54	197.20	155.24	112.83	77.75	35.63	3.86
85	318.57	279.72	238.82	195.18	153.90	113.16	77.20	35.96	3.27
90	311.70	272.93	233.83	193.34	152.85	111.03	77.45	36.17	2.68
95	303.82	267.19	228.76	187.68	148.33	108.26	76.03	34.91	3.10
100	294.10	258.89	221.88	182.15	144.22	105.95	75.32	32.82	3.60
105	282.82	249.04	213.50	176.58	139.94	103.10	71.75	31.69	3.44
110	271.38	239.07	205.16	169.33	133.87	97.74	64.88	29.00	3.69
115	258.18	227.50	195.27	160.94	127.41	92.58	58.26	24.60	4.44
120	243.34	214.80	183.87	151.81	119.79	87.55	54.23	21.04	4.78
125	228.04	199.54	169.79	139.53	108.72	80.68	46.86	17.18	5.11
130	205.62	178.42	151.09	122.51	95.14	66.89	39.31	14.46	5.53
135	180.60	156.92	132.78	107.42	83.07	58.59	33.24	13.04	5.95
140	156.29	135.96	114.92	92.96	71.25	50.29	27.49	11.61	6.20
145	135.21	118.95	97.49	78.25	59.89	40.36	22.93	10.60	6.45
150	116.01	98.49	81.23	65.59	49.25	33.19	20.54	10.10	6.96
155	92.63	78.84	66.93	53.40	39.94	28.58	18.27	10.10	7.88
160	71.84	62.07	51.68	41.54	32.40	24.02	15.97	9.98	8.63
165	51.22	44.18	37.68	31.18	25.06	18.94	13.20	9.72	9.05
170	33.28	29.76	25.90	21.92	17.94	14.04	10.90	9.60	9.39
175	18.65	16.93	14.88	12.95	11.36	10.35	9.89	9.68	9.72
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011203.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	29.00	N.A.	0.90
0-30	100.74	N.A.	3.20
0-40	238.09	N.A.	7.60
0-60	729.80	N.A.	23.20
0-80	1408.6	N.A.	44.80
0-90	1757.38	N.A.	55.90
10-90	1753.87	N.A.	55.80
20-40	209.09	N.A.	6.70
20-50	420.86	N.A.	13.40
40-70	820.01	N.A.	26.10
60-80	678.81	N.A.	21.60
70-80	350.50	N.A.	11.20
80-90	348.77	N.A.	11.10
90-110	626.74	N.A.	19.90
90-120	881.21	N.A.	28.00
90-130	1084.12	N.A.	34.50
90-150	1320.53	N.A.	42.00
90-180	1385.04	N.A.	44.10
110-180	758.30	N.A.	24.10
0-180	3142.41	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	3.51
10-20	25.49
20-30	71.74
30-40	137.35
40-50	211.78
50-60	279.93
60-70	328.30
70-80	350.50
80-90	348.77
90-100	329.44
100-110	297.29
110-120	254.47
120-130	202.90
130-140	145.62
140-150	90.80
150-160	46.28
160-170	16.12
170-180	2.10

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011203.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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56
1	93	86	80	75	86	80	74	69	67	63	59	56	52	49	45	43	40	35
2	83	72	63	56	76	66	59	52	55	49	44	46	41	37	36	33	29	25
3	74	61	52	44	67	56	48	41	47	40	34	38	33	28	30	26	22	18
4	67	53	43	35	61	49	40	33	40	33	28	33	27	23	26	21	18	14
5	61	46	36	29	55	43	34	27	35	28	23	29	23	18	22	18	14	11
6	55	41	31	24	50	38	29	23	31	24	19	25	20	15	20	15	12	9
7	51	36	27	21	46	34	25	19	28	21	16	23	17	13	18	13	10	7
8	47	33	24	18	43	30	22	16	25	18	14	21	15	11	16	12	8	6
9	43	30	21	15	40	27	20	14	23	16	12	19	13	10	15	10	7	5
10	40	27	19	13	37	25	17	12	21	15	10	17	12	8	14	9	6	4

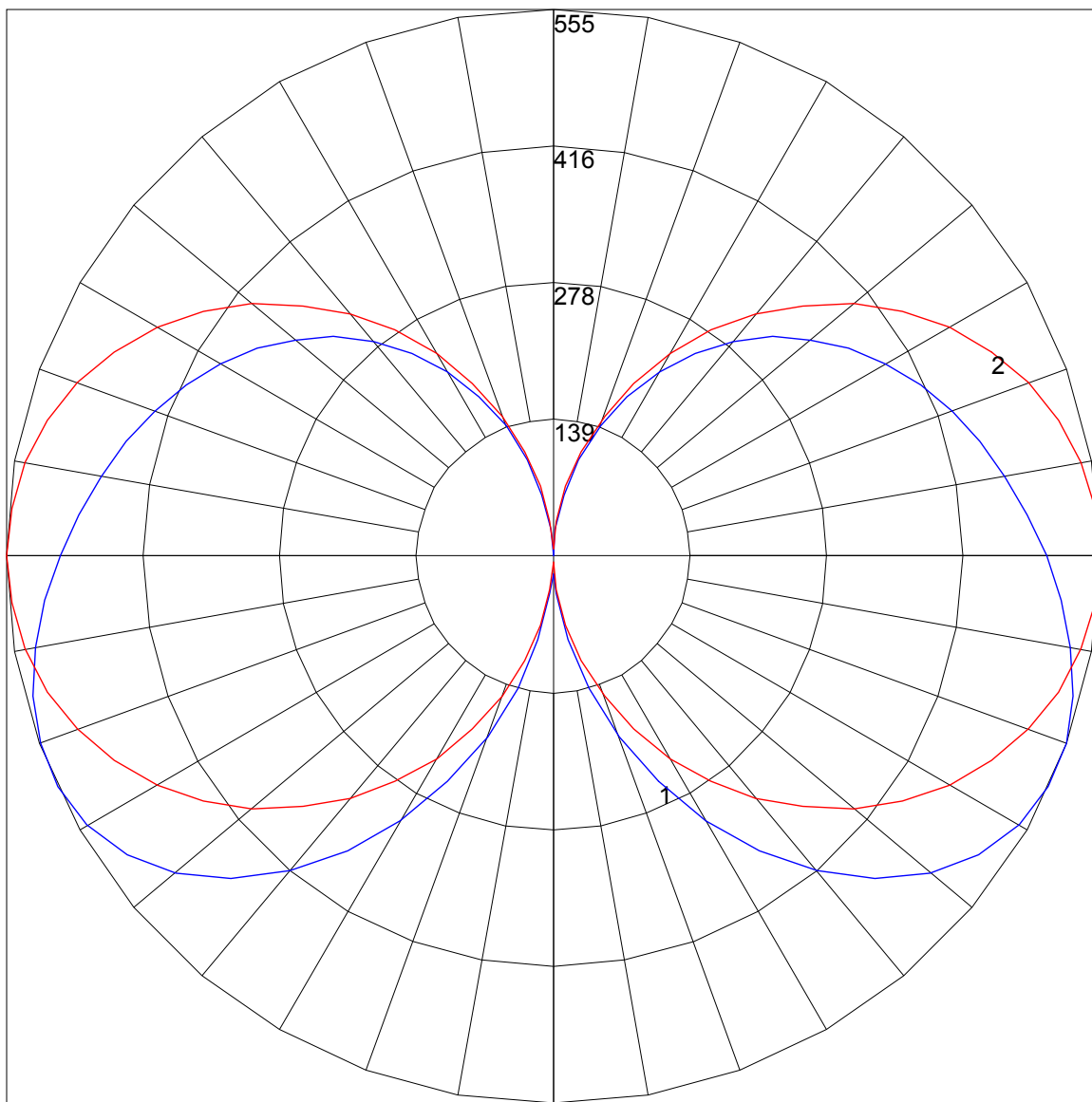
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011203.IES

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	18.7	19.8	19.5	20.7	21.9	7.3	8.4	8.1	9.3	10.5
	3H	22.5	23.5	23.4	24.5	25.7	8.6	9.6	9.5	10.6	11.7
	4H	24.4	25.4	25.3	26.3	27.5	9.0	10.0	9.9	11.0	12.2
	6H	26.4	27.4	27.3	28.3	29.5	9.3	10.2	10.2	11.1	12.4
	8H	27.5	28.4	28.4	29.3	30.5	9.3	10.2	10.2	11.2	12.4
	12H	28.6	29.5	29.5	30.4	31.6	9.4	10.2	10.3	11.2	12.4
4H	2H	18.8	19.8	19.7	20.7	21.9	12.2	13.1	13.0	14.1	15.3
	3H	22.9	23.7	23.8	24.7	25.9	13.9	14.8	14.8	15.8	17.0
	4H	25.0	25.8	25.9	26.7	27.9	14.6	15.4	15.5	16.4	17.6
	6H	27.2	27.9	28.1	28.8	30.1	15.0	15.7	15.9	16.7	17.9
	8H	28.3	29.0	29.2	30.0	31.2	15.1	15.8	16.1	16.8	18.0
	12H	29.6	30.2	30.5	31.2	32.4	15.2	15.8	16.2	16.8	18.1
8H	4H	25.0	25.7	26.0	26.7	27.9	17.5	18.2	18.4	19.1	20.4
	6H	27.4	28.0	28.3	29.0	30.2	18.3	18.9	19.3	19.9	21.2
	8H	28.7	29.2	29.6	30.2	31.5	18.6	19.2	19.6	20.2	21.4
	12H	30.1	30.6	31.1	31.6	32.9	18.8	19.3	19.8	20.3	21.6
12H	4H	25.0	25.7	26.0	26.6	27.9	18.3	19.0	19.3	19.9	21.2
	6H	27.4	28.0	28.4	28.9	30.2	19.4	20.0	20.4	21.0	22.2
	8H	28.7	29.2	29.7	30.2	31.5	19.9	20.4	20.9	21.4	22.7

Maximum UGR = 32.9

POLAR GRAPH



Maximum Candela = 555.33 Located At Horizontal Angle = 0, Vertical Angle = 65
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (65) (Through Max. Cd.)