

IES Report

ZipTwo® | 707 | Square 3554, Diffuse | 90 CRI | SO

707-Z2-4-48-XX-XX-X-0-Z-SO-359-J6-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	127	131	134	135
Total Lumens, 4' rail length (1219mm)	3312	3417	3487	3522
Lumens per foot (305mm)	828	854	872	880
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: L082011206



Report No: L082011206

Issue Date: 9/3/2020

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

Model Number: 707-Z2-48-Z-SO-359-J6-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

Manufacturer:	Vode Lighting
Model Number:	707-Z2-48-Z-SO-359-J6-WH
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	3486.68
Efficacy:	133.25
Color Redering Index:	95.2
Correlated Color Temperature:	3364
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):	1:00
Total Operating Time (Hours):	2:55

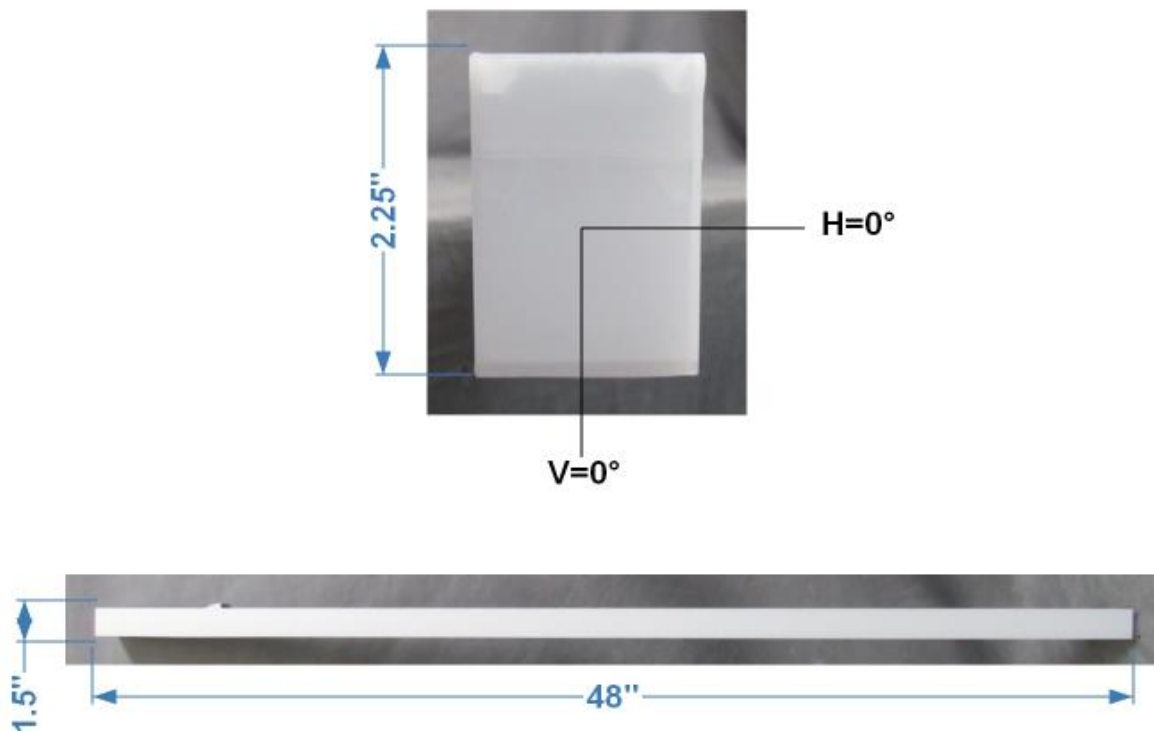
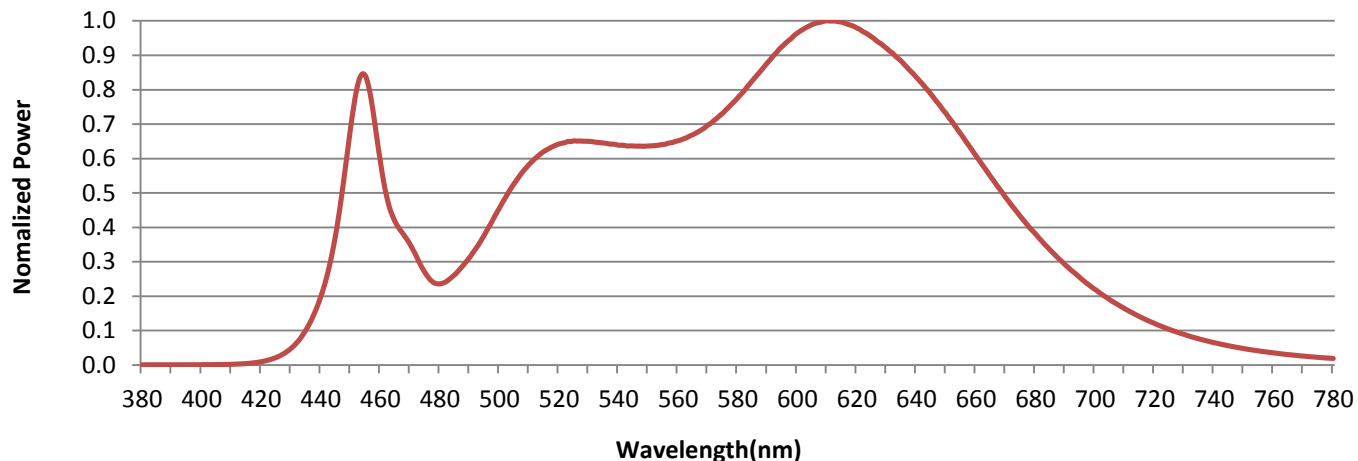


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



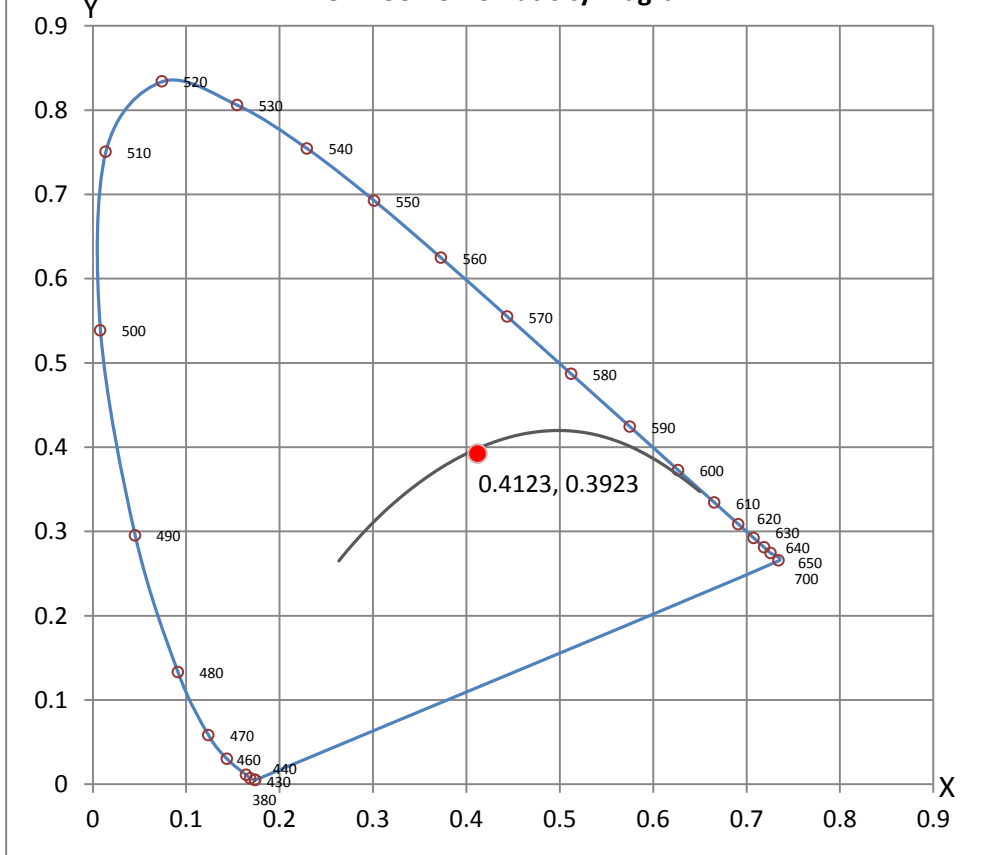
CRI & CCT

x	0.4123
y	0.3923
u'	0.2396
v'	0.5130
CRI	95.20
CCT	3364
Duv	-0.00078

R Values

R1	97.04
R2	98.80
R3	98.83
R4	98.20
R5	97.50
R6	96.08
R7	91.84
R8	82.96
R9	60.99
R10	97.16
R11	95.68
R12	79.47
R13	98.37
R14	99.20
R15	91.38

CIE 1931 Chromaticity Diagram





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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*

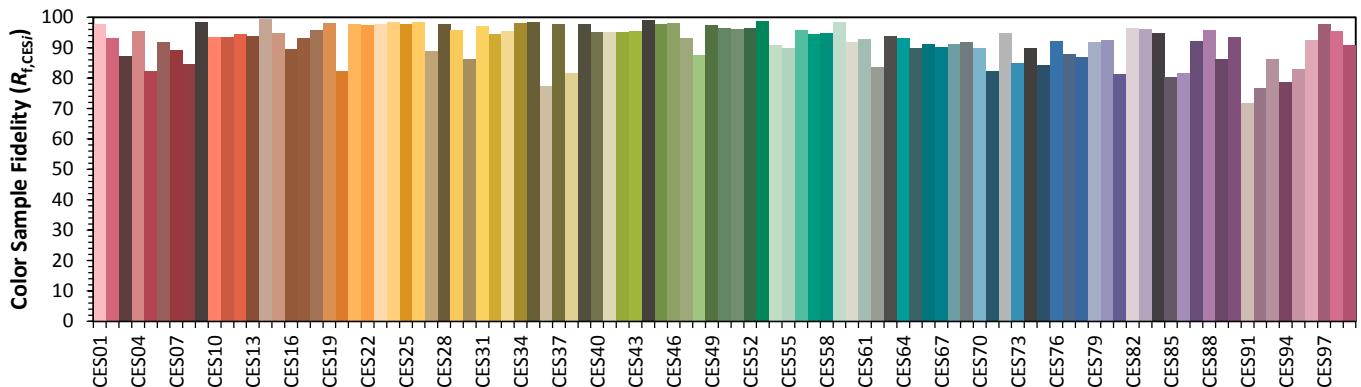
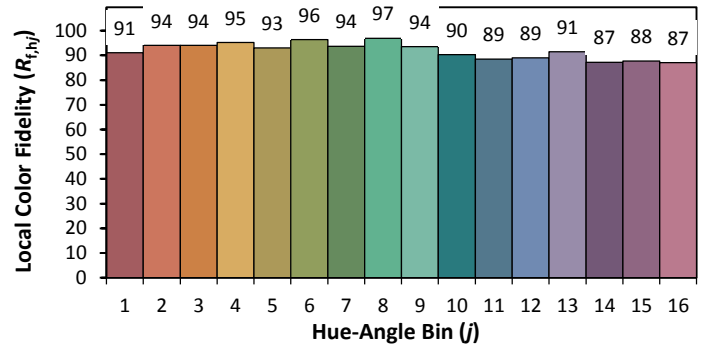
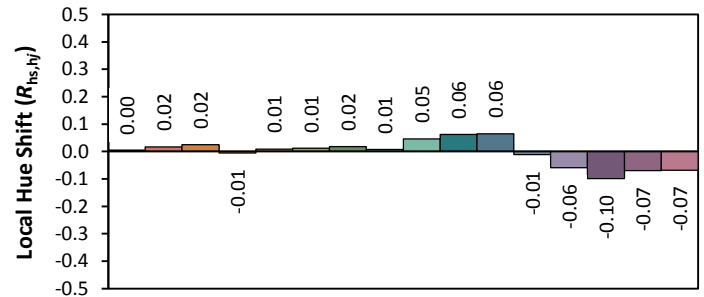
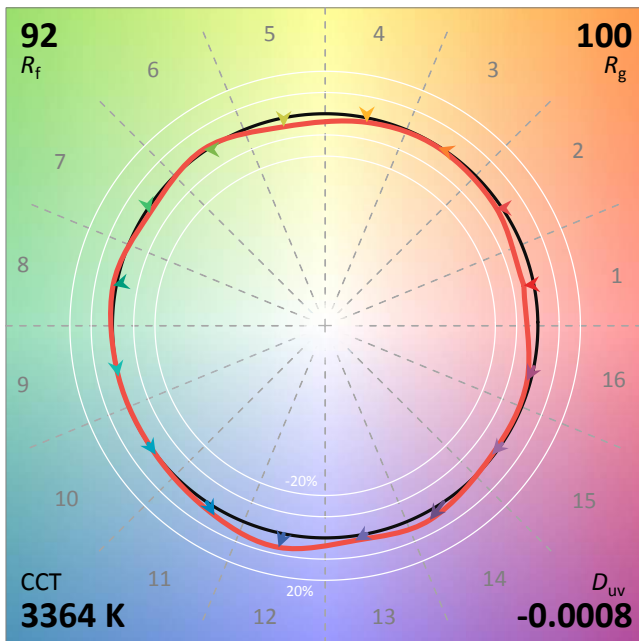
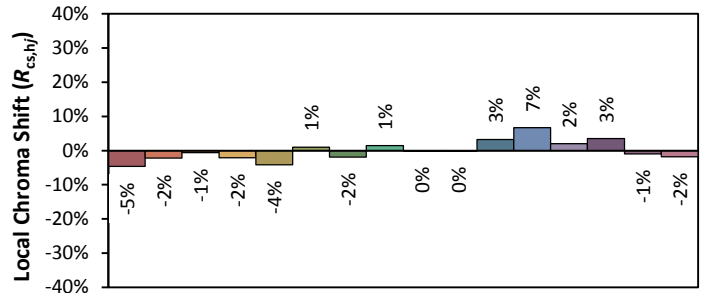
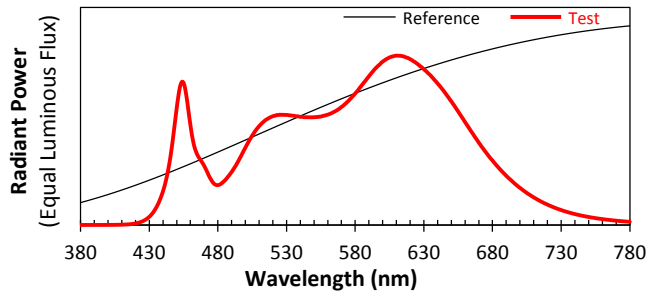
ANSI/IES TM-30-18 Color Rendition Report

Source: LED Luminaire

Manufacturer: Vode Lighting

Date: 9/3/2020

Model: 707-Z2-48-Z-SO-359-J6-WH



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

x 0.4123

y 0.3923

u' 0.2396

v' 0.5130

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 : L082011206.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L082011206
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 9/2/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-SO-359-J6-WH
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board,
[MORE] square 3554, diffuse lens, standard output
[BALLASTCAT] MEAN WELL HLG-40H-36A
[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	3487
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	133
Total Luminaire Watts	26.17
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	2.04
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.84
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.13 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.18 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	7360	6898	7479
55	7243	6674	7091
65	6941	6378	6692
75	6478	6017	6291
85	5971	5684	6291

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011206.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	415.80	415.80	415.80	415.80	415.80	415.80	415.80	415.80	415.80	415.80
5	424.49	424.49	424.23	423.86	423.27	422.64	421.89	421.05	420.08	419.12
10	453.07	452.86	452.19	450.97	449.17	446.95	444.39	441.33	437.90	434.13
15	480.98	480.61	479.39	477.38	474.40	470.76	466.40	461.33	455.63	449.63
20	507.39	506.80	504.96	502.06	497.75	492.47	486.31	478.76	470.55	461.62
25	532.28	531.32	528.85	524.91	519.12	511.96	503.36	493.39	482.41	470.80
30	554.92	553.78	550.64	545.40	538.07	529.10	518.16	505.50	491.50	476.88
35	574.53	573.15	569.17	562.84	553.74	542.55	529.60	514.14	497.20	479.56
40	590.04	588.45	583.88	576.42	565.73	552.53	537.15	519.21	499.30	478.89
45	600.10	598.25	593.06	584.46	572.39	557.39	539.95	519.84	497.33	474.28
50	603.03	601.10	595.44	586.31	572.90	556.47	537.40	515.27	490.96	465.48
55	598.09	596.16	590.29	580.52	566.65	548.96	528.97	505.33	479.39	452.32
60	584.67	582.83	576.75	566.74	552.69	534.71	514.01	489.66	462.71	434.67
65	563.05	561.08	555.29	545.40	531.57	513.76	493.18	468.62	441.33	412.88
70	534.04	532.24	526.63	517.40	504.20	486.85	466.65	442.55	415.68	387.39
75	500.01	498.29	493.14	484.42	471.85	455.46	436.10	413.04	386.93	359.40
80	462.37	460.74	456.09	448.04	436.30	421.05	402.90	381.06	356.25	330.77
85	423.40	422.05	417.49	410.07	399.17	385.34	368.24	347.70	326.37	300.72
90	387.44	386.14	381.99	375.16	365.43	352.31	336.51	318.66	297.07	272.76
95	362.71	361.53	358.01	351.81	342.88	331.86	317.53	299.67	279.09	256.71
100	344.60	343.60	340.45	334.92	327.17	316.27	302.81	286.51	266.94	246.02
105	329.76	328.76	325.62	320.17	312.20	301.89	288.94	273.56	256.00	235.97
110	312.75	311.74	308.81	303.57	296.19	286.18	274.11	259.65	242.80	224.19
115	295.40	294.43	291.58	286.76	279.72	270.33	258.97	245.10	229.34	211.53
120	277.46	276.58	273.98	269.41	262.62	253.69	243.01	229.97	214.88	198.50
125	258.85	258.01	255.50	251.14	244.68	236.34	226.37	214.25	200.09	184.75
130	239.23	238.35	235.92	231.86	225.82	218.19	208.89	197.49	184.37	167.86
135	218.36	217.65	215.43	211.61	205.96	198.92	190.11	177.96	162.45	146.99
140	196.57	195.77	193.72	190.11	185.04	178.29	167.02	153.15	139.78	126.66
145	173.43	172.76	170.79	167.56	162.91	152.94	140.78	129.51	118.49	107.88
150	149.29	148.62	146.94	144.09	136.17	125.40	115.97	107.21	99.67	92.71
155	124.40	123.89	122.34	117.52	107.30	99.46	92.63	88.23	83.11	76.83
160	98.58	98.16	96.27	86.80	79.97	74.73	72.26	69.07	64.25	57.55
165	70.66	70.20	63.29	57.96	54.36	53.82	52.10	49.12	44.22	40.45
170	43.67	39.69	34.54	32.57	33.57	33.91	32.78	31.18	29.55	27.49
175	21.54	16.81	16.89	18.65	19.36	19.11	18.78	18.40	17.73	17.02
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	415.80	415.80	415.80	415.80	415.80	415.80	415.80	415.80	415.80
5	418.20	417.32	416.44	415.60	415.01	414.47	414.09	413.97	414.09
10	430.06	425.91	421.68	417.57	414.26	411.62	409.44	408.39	408.31
15	442.80	435.63	428.43	420.59	413.25	406.46	401.64	398.63	397.75
20	452.02	442.05	431.86	421.09	410.32	399.59	390.45	385.05	383.41
25	457.93	444.90	431.61	417.70	403.91	389.87	376.79	368.11	365.31
30	460.99	444.52	428.09	410.82	394.18	377.12	361.11	348.50	344.10
35	460.28	440.83	421.22	400.85	381.40	361.41	342.84	326.45	320.54
40	456.88	434.00	411.45	388.06	365.52	343.51	322.47	302.77	294.64
45	449.17	423.81	398.12	372.43	347.33	323.14	299.67	278.00	267.23
50	438.02	409.90	382.28	353.95	327.21	300.80	275.36	251.93	238.48
55	423.02	393.39	363.13	333.41	304.83	276.70	249.84	225.07	209.31
60	404.20	373.27	341.88	311.41	280.85	251.35	223.39	197.53	179.47

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011206.IES

CANDELA TABULATION - (Cont.)

65	381.40	350.43	318.66	286.72	255.37	224.94	196.07	169.37	149.96
70	355.92	325.15	292.88	260.65	229.30	197.99	168.24	141.50	120.46
75	328.84	298.12	266.14	233.91	201.93	171.59	141.45	114.21	91.96
80	301.31	270.79	239.86	208.43	176.74	145.56	116.10	88.81	65.22
85	273.02	243.64	213.12	181.02	150.59	119.70	90.66	63.83	40.15
90	245.73	217.27	187.60	156.29	126.11	96.10	66.93	40.07	16.51
95	230.98	204.70	176.53	148.12	118.95	90.15	62.11	36.04	12.57
100	222.89	197.32	170.58	142.17	114.63	86.51	60.14	33.66	12.32
105	213.46	189.48	164.13	136.93	110.52	83.99	56.83	31.31	11.90
110	203.06	180.39	156.42	130.68	105.62	80.05	54.28	28.84	12.24
115	191.58	170.67	147.70	123.85	100.00	76.07	51.01	26.03	12.07
120	180.01	159.48	138.73	116.89	94.09	71.08	46.77	22.67	11.82
125	167.48	147.91	127.37	105.66	84.75	62.62	40.40	19.95	11.74
130	149.79	130.89	112.45	93.38	74.39	54.11	34.37	17.27	11.48
135	130.81	114.80	98.49	81.35	64.38	46.15	28.79	15.42	11.15
140	112.95	99.37	85.54	69.83	54.19	38.81	24.18	14.04	10.81
145	97.82	87.18	72.30	57.88	44.97	31.39	20.58	12.74	10.56
150	84.24	71.96	59.68	48.37	36.97	27.08	18.78	12.36	10.73
155	66.81	57.21	48.87	39.06	30.85	23.64	16.93	12.24	10.81
160	51.18	44.09	37.26	31.06	25.44	19.91	14.84	11.69	10.56
165	36.51	32.52	28.63	24.18	20.33	16.26	13.12	11.15	10.31
170	25.27	23.22	20.91	18.44	15.63	13.50	11.90	10.94	10.48
175	16.05	15.05	13.87	12.83	12.07	11.36	10.86	10.56	10.48
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011206.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	166.53	N.A.	4.80
0-30	379.93	N.A.	10.90
0-40	672.74	N.A.	19.30
0-60	1415.9	N.A.	40.60
0-80	2159.38	N.A.	61.90
0-90	2459.62	N.A.	70.50
10-90	2419.19	N.A.	69.40
20-40	506.21	N.A.	14.50
20-50	860.76	N.A.	24.70
40-70	1131.46	N.A.	32.50
60-80	743.47	N.A.	21.30
70-80	355.17	N.A.	10.20
80-90	300.25	N.A.	8.60
90-110	476.27	N.A.	13.70
90-120	664.20	N.A.	19.00
90-130	811.71	N.A.	23.30
90-150	980.67	N.A.	28.10
90-180	1027.06	N.A.	29.50
110-180	550.79	N.A.	15.80
0-180	3486.68	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	40.44
10-20	126.10
20-30	213.39
30-40	292.82
40-50	354.55
50-60	388.61
60-70	388.31
70-80	355.17
80-90	300.25
90-100	253.15
100-110	223.12
110-120	187.93
120-130	147.51
130-140	104.35
140-150	64.61
150-160	33.09
160-170	11.63
170-180	1.66

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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75	71
1	98	92	86	81	92	87	82	77	77	73	69	68	65	62	60	57	55	51
2	88	78	70	63	82	73	66	60	65	59	54	57	52	48	50	46	43	39
3	79	67	58	50	74	63	55	48	56	49	43	49	43	39	43	38	34	31
4	71	58	49	41	67	55	46	39	49	41	36	43	37	32	37	32	28	25
5	65	51	42	35	61	48	40	33	43	36	30	38	32	27	33	28	24	21
6	60	46	36	29	56	43	34	28	38	31	26	34	28	23	30	25	21	18
7	55	41	32	25	52	39	30	24	35	27	22	31	24	20	27	22	18	15
8	51	37	28	22	48	35	27	21	31	24	19	28	22	18	24	19	16	13
9	48	34	25	20	45	32	24	19	29	22	17	25	20	16	22	18	14	12
10	44	31	23	17	42	29	22	17	26	20	15	23	18	14	21	16	12	10

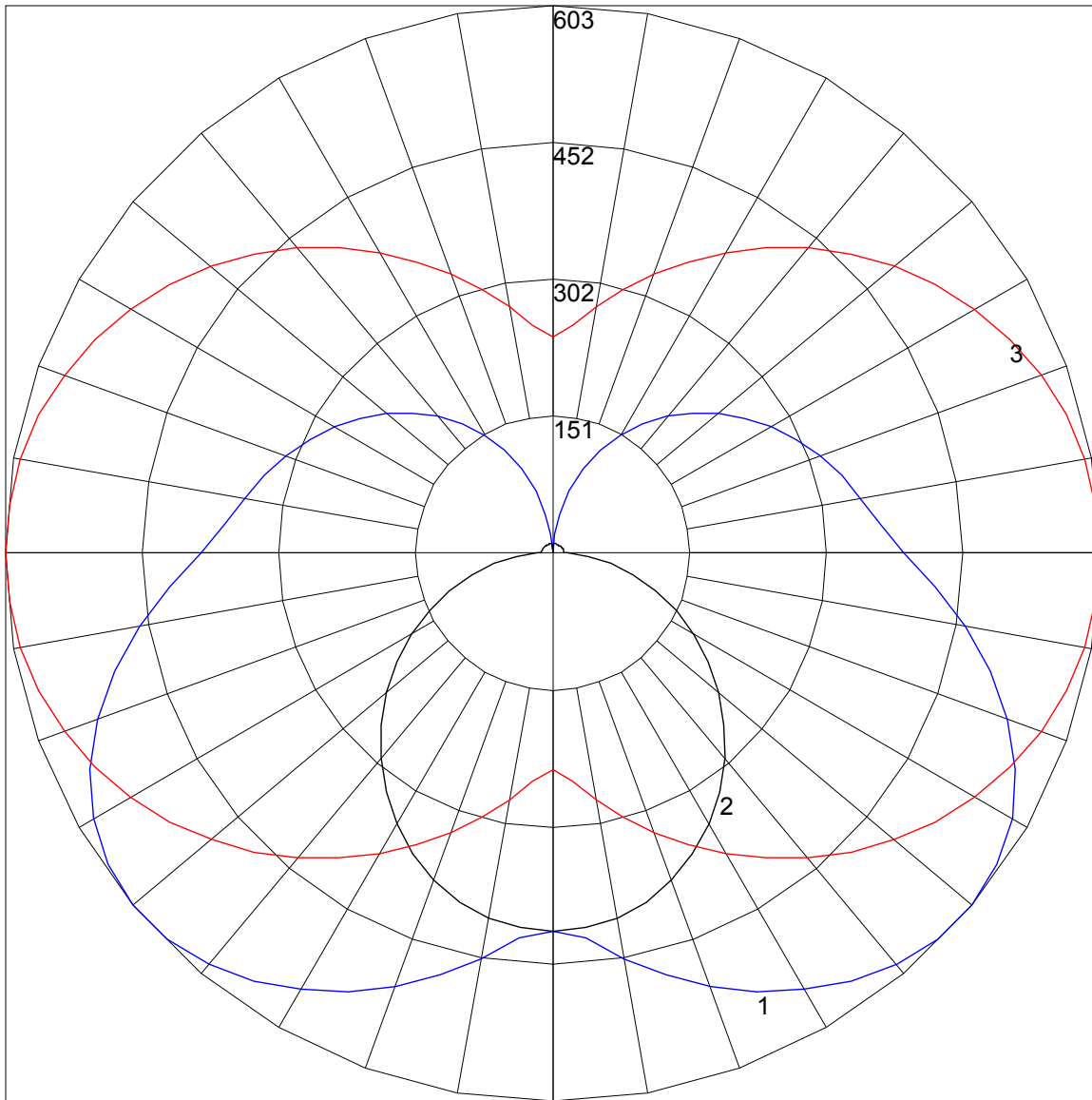
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011206.IES

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	19.8	21.0	20.5	21.8	22.7	13.0	14.3	13.7	15.0	16.0
	3H	23.0	24.2	23.8	25.0	25.9	14.4	15.6	15.1	16.3	17.3
	4H	24.6	25.7	25.4	26.5	27.5	14.9	16.0	15.6	16.8	17.7
	6H	26.3	27.4	27.1	28.2	29.1	15.2	16.2	16.0	17.0	18.0
	8H	27.2	28.2	28.0	29.0	30.0	15.3	16.3	16.1	17.1	18.1
	12H	28.2	29.1	29.0	29.9	30.9	15.3	16.3	16.1	17.1	18.1
4H	2H	20.0	21.1	20.7	21.9	22.8	15.2	16.3	15.9	17.0	18.0
	3H	23.4	24.4	24.2	25.2	26.2	16.9	17.8	17.6	18.6	19.6
	4H	25.2	26.1	26.0	26.9	27.9	17.5	18.4	18.3	19.2	20.2
	6H	27.1	27.9	27.9	28.7	29.7	18.0	18.8	18.8	19.6	20.6
	8H	28.1	28.8	28.9	29.7	30.7	18.1	18.9	18.9	19.7	20.7
	12H	29.1	29.8	30.0	30.7	31.7	18.2	18.9	19.0	19.7	20.8
8H	4H	25.3	26.1	26.1	26.9	27.9	19.2	19.9	20.0	20.7	21.8
	6H	27.3	28.0	28.2	28.9	29.9	19.9	20.6	20.8	21.4	22.5
	8H	28.4	29.0	29.3	29.9	30.9	20.2	20.8	21.0	21.7	22.7
	12H	29.7	30.2	30.5	31.1	32.2	20.4	20.9	21.3	21.8	22.9
12H	4H	25.3	26.0	26.1	26.8	27.9	19.7	20.3	20.5	21.2	22.2
	6H	27.4	27.9	28.2	28.8	29.9	20.6	21.2	21.5	22.1	23.1
	8H	28.5	29.0	29.4	29.9	31.0	21.0	21.6	21.9	22.4	23.5

Maximum UGR = 32.2

POLAR GRAPH



Maximum Candela = 603.03 Located At Horizontal Angle = 0, Vertical Angle = 50

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 (50) (Through Max. Cd.)