

IES Report

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

707-Z2-4-48-XX-XX-X-0-Z-SO-359-J9-X-BL-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	110	113	115	116
Total Lumens, 4' rail length (1219mm)	2852	2942	3002	3032
Lumens per foot (305mm)	713	735	750	758
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: L082011208



Report No: L082011208

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-J9-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-J9-BL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	3001.82
Efficacy:	114.85
Color Redering Index:	95.0
Correlated Color Temperature:	3383
Input Voltage (VAC/60Hz):	119.98
Input Current (Amp):	0.2194
Input Power (W):	26.14
Input Power Factor:	0.9930
Current ATHD (%):	9.0%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:05
Total Operating Time (Hours):	2:45

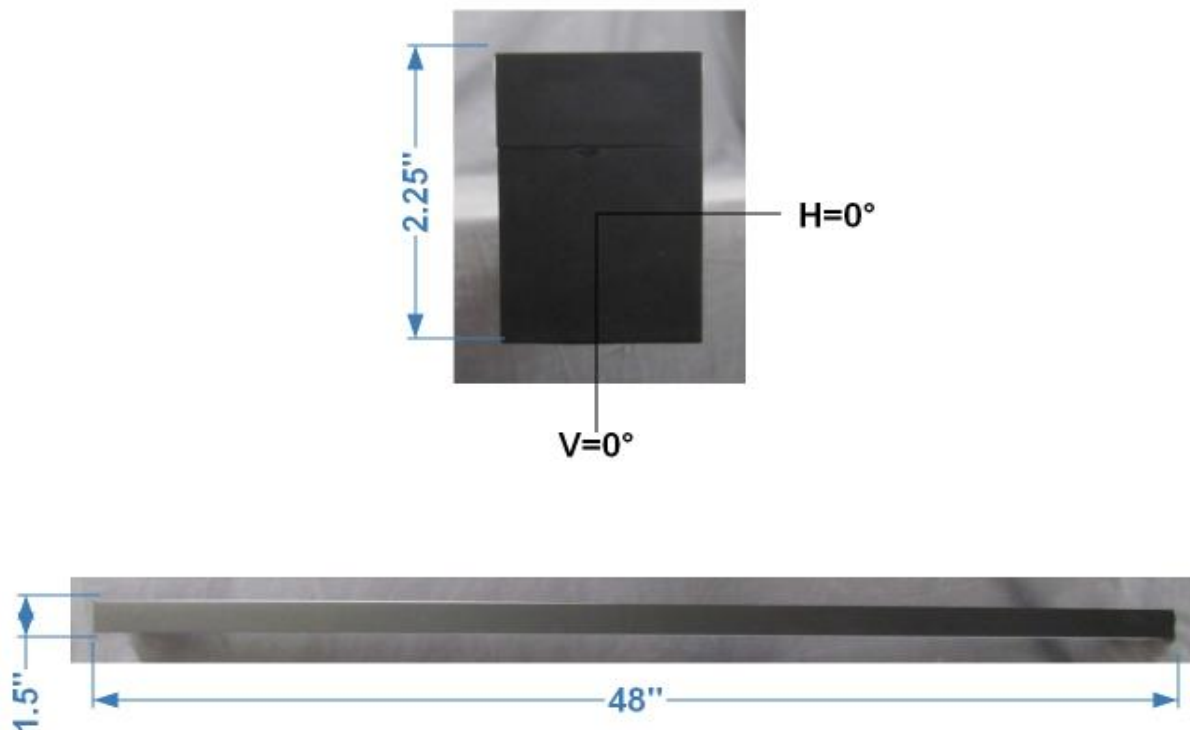
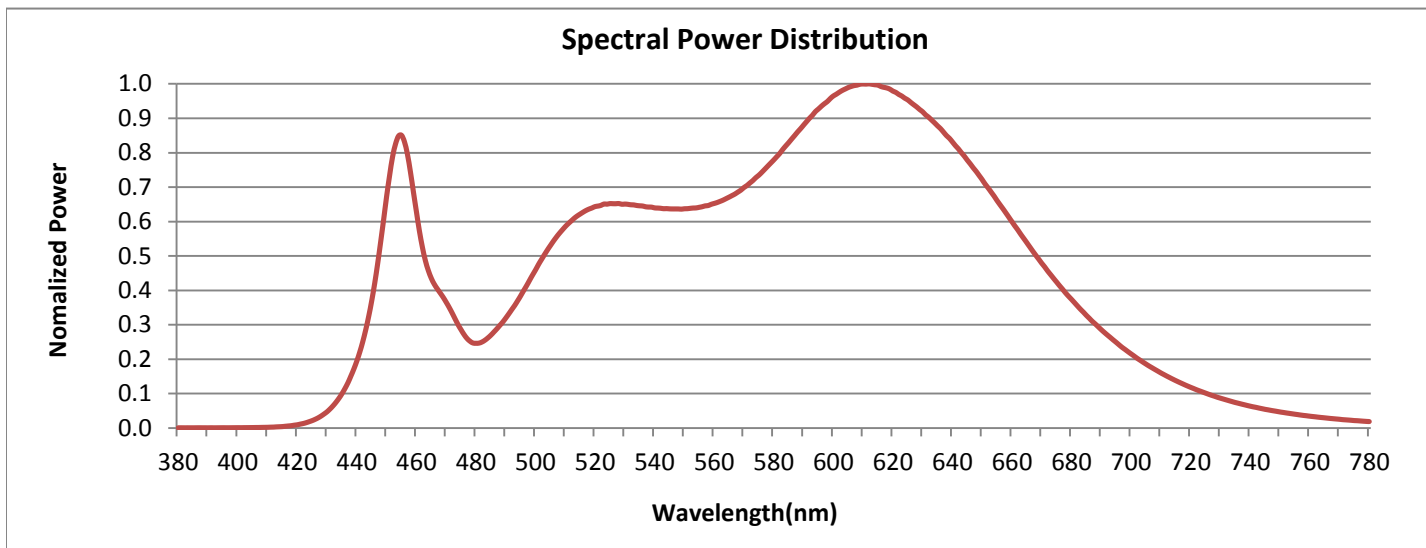


FIG. 1 LUMINAIRE

Colorimetry Test Results

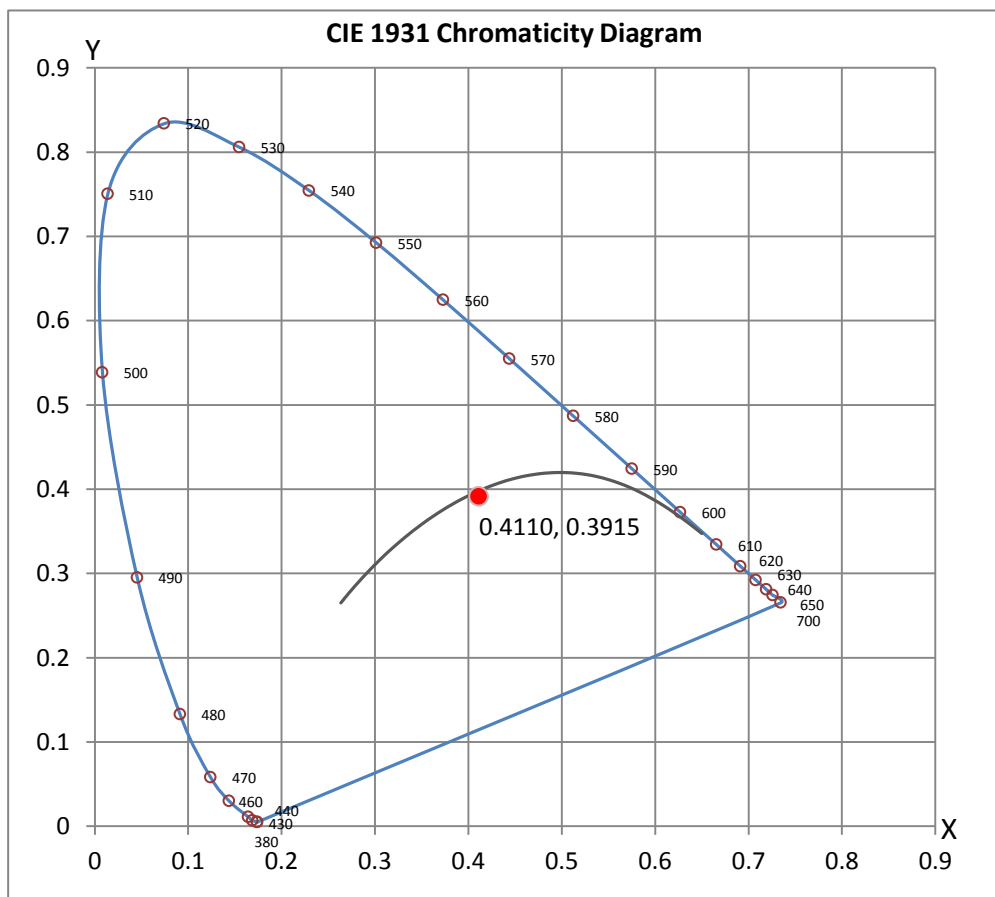


CRI & CCT

x	0.4110
y	0.3915
u'	0.2391
v'	0.5124
CRI	95.00
CCT	3383
Duv	-0.00087

R Values

R1	97.04
R2	99.02
R3	98.59
R4	98.09
R5	97.43
R6	95.84
R7	91.51
R8	82.70
R9	60.73
R10	97.72
R11	96.08
R12	79.18
R13	98.49
R14	99.38
R15	91.39





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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*

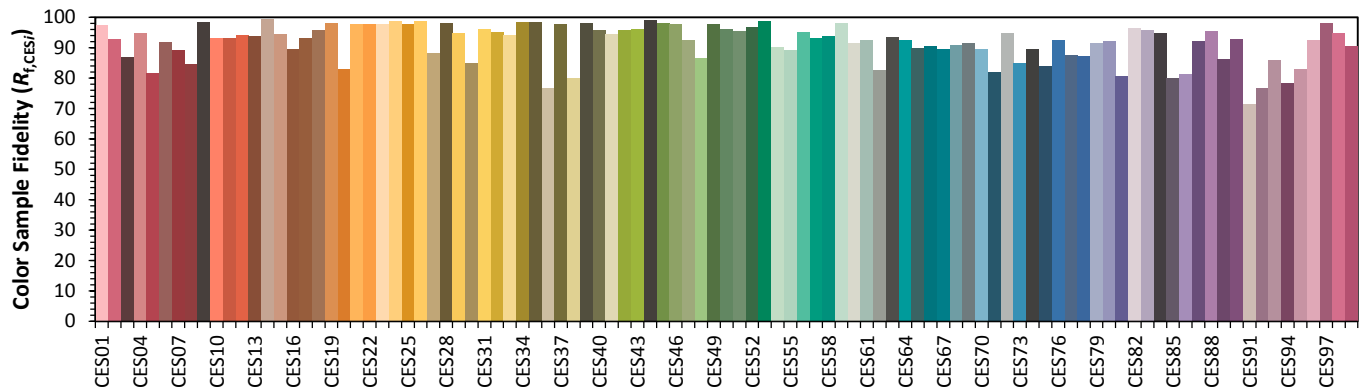
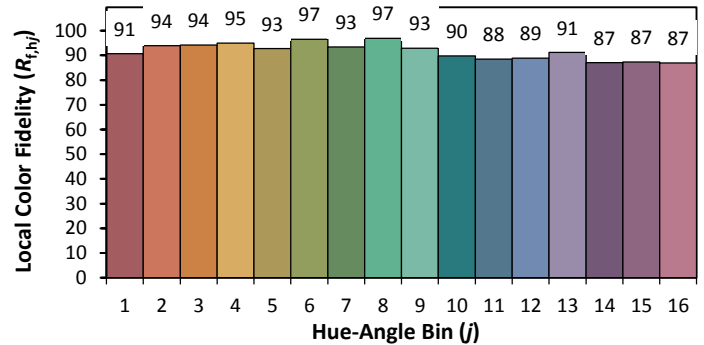
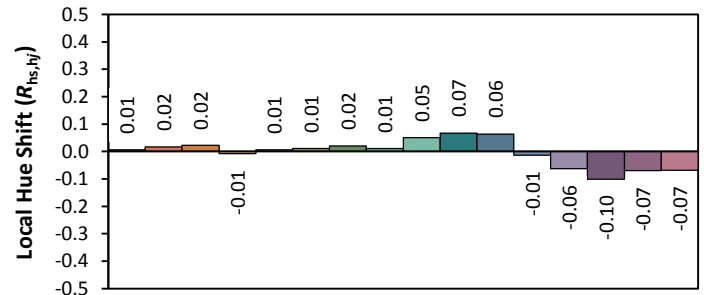
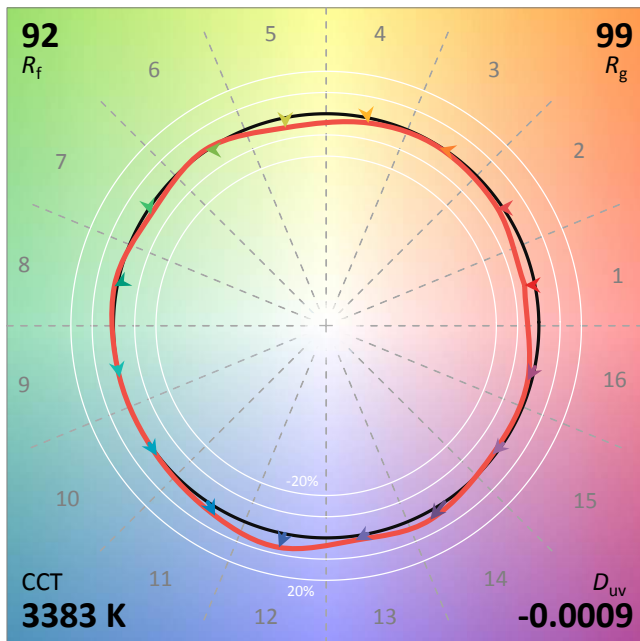
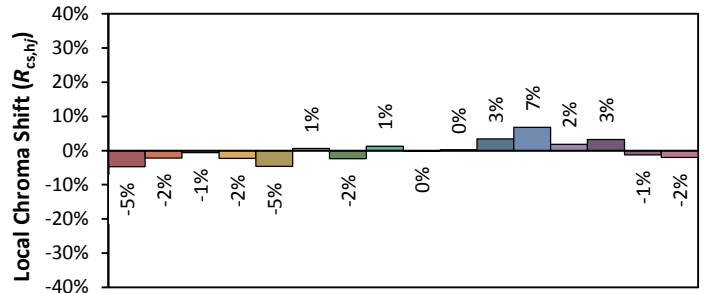
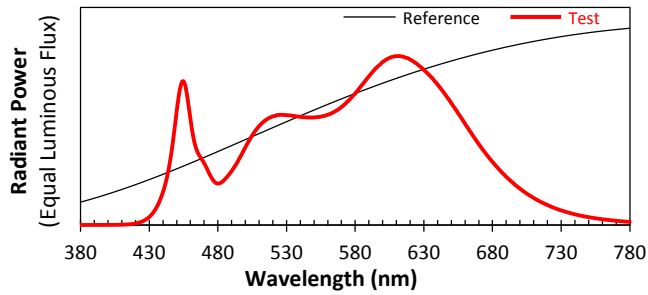
ANSI/IES TM-30-18 Color Rendition Report

Source: LED Luminaire

Manufacturer: Vode Lighting

Date: 9/3/2020

Model: 707-Z2-48-Z-SO-359-J9-BL



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

x 0.4110
 y 0.3915
 u' 0.2391
 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 : L082011208.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L082011208
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUE DATE] 9/2/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-Z-SO-359-J9-BL
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board,
[MORE] square 3554, side diffuse black 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] 119.98VAC, 26.14W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3002
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	115
Total Luminaire Watts	26.14
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	0.17 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	5575	4197	460
55	6302	4881	443
65	6791	5427	433
75	7077	5970	469
85	7389	6713	725

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011208.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	23.29	23.29	23.29	23.29	23.29	23.29	23.29	23.29	23.29	23.29
5	45.85	45.85	45.43	45.73	44.43	43.21	41.58	39.61	37.97	36.13
10	91.20	90.74	89.90	88.18	86.21	83.11	79.51	74.90	70.41	65.43
15	140.07	139.40	137.64	134.92	130.39	124.81	118.78	111.15	103.86	95.98
20	190.87	190.28	187.77	183.74	176.79	169.16	160.31	150.46	139.86	128.34
25	245.10	243.84	240.32	234.88	225.45	215.18	203.82	190.53	176.28	161.32
30	297.91	296.36	292.46	285.55	274.78	262.16	247.74	230.81	212.83	193.97
35	349.21	347.62	342.42	333.29	320.33	306.29	288.73	268.78	247.16	224.69
40	396.74	394.52	388.19	378.51	364.30	346.03	326.79	304.66	279.64	253.65
45	438.82	436.77	429.89	418.16	402.36	382.62	360.53	335.67	308.85	279.81
50	474.03	471.76	463.92	451.48	434.92	413.84	389.82	361.95	331.36	301.60
55	499.93	497.83	490.37	478.05	459.82	438.23	412.83	383.50	349.50	319.20
60	517.95	515.52	507.72	494.69	477.13	454.29	428.26	398.54	366.44	330.48
65	526.67	524.11	516.73	504.91	487.02	464.80	438.02	407.72	374.27	337.14
70	526.08	523.57	516.57	505.08	487.02	466.19	440.92	411.28	378.17	339.45
75	519.54	517.28	510.66	499.26	483.08	462.88	437.77	409.94	378.68	340.12
80	508.81	506.72	500.60	490.20	474.78	455.37	432.45	405.00	373.81	338.69
85	495.32	493.39	487.61	477.76	463.51	445.15	423.44	397.24	367.44	336.22
90	480.98	479.14	473.40	464.05	450.51	433.71	412.37	387.98	359.40	329.97
95	466.65	464.68	459.23	450.22	437.77	420.92	400.76	377.12	347.45	321.59
100	452.32	450.47	445.32	436.68	424.28	408.06	388.90	365.72	338.57	311.62
105	437.39	435.72	430.52	422.05	409.65	394.14	375.74	353.57	328.67	300.72
110	421.64	420.04	414.89	406.42	394.94	379.18	361.11	338.44	316.56	289.78
115	403.95	402.48	397.54	389.24	377.80	362.75	345.31	325.49	301.39	275.53
120	383.66	382.15	377.42	369.41	358.06	344.56	328.47	308.26	285.21	260.61
125	360.53	359.10	354.41	346.91	336.93	323.77	307.84	288.90	267.86	244.77
130	335.55	334.17	329.93	323.48	313.46	300.85	285.84	268.03	247.45	223.27
135	307.30	305.96	302.14	295.69	286.51	275.03	261.20	242.42	218.70	195.60
140	275.53	274.40	271.00	265.35	256.71	246.49	229.68	208.43	188.10	168.44
145	241.08	240.11	237.43	232.28	224.73	210.32	192.67	175.91	159.06	143.13
150	204.95	203.94	201.89	197.49	185.84	171.00	157.34	144.18	132.48	122.13
155	167.98	167.36	165.59	159.27	144.60	133.99	124.10	117.19	109.35	100.17
160	129.59	129.05	127.71	115.09	105.54	98.70	94.97	90.24	83.57	74.27
165	89.61	88.90	81.39	74.52	69.57	69.20	66.68	62.41	55.66	50.38
170	51.80	47.61	41.49	39.10	40.49	41.37	40.24	38.52	36.80	34.37
175	23.64	18.53	19.07	21.29	22.51	22.72	22.42	22.00	21.17	20.16
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	23.29	23.29	23.29	23.29	23.29	23.29	23.29	23.29	23.29
5	34.33	32.61	31.06	29.42	28.12	26.82	25.86	25.15	24.39
10	59.89	53.98	48.16	42.08	36.76	31.98	27.91	25.48	23.97
15	86.67	77.54	68.15	58.26	48.62	38.94	30.76	25.61	23.56
20	115.85	102.60	89.32	75.74	62.37	48.79	35.33	26.07	22.63
25	144.51	127.33	110.19	92.71	75.36	58.43	41.33	26.91	21.71
30	173.39	152.10	130.81	109.47	88.60	67.40	47.11	28.37	20.54
35	200.05	174.69	149.75	124.56	100.13	75.53	52.06	29.93	19.28
40	225.53	196.57	167.90	138.27	110.48	82.65	56.29	31.06	17.18
45	247.83	216.06	183.87	151.01	120.08	92.33	60.23	32.99	16.35
50	266.64	231.90	196.99	162.79	128.75	96.73	66.72	34.70	14.75
55	283.41	246.57	209.27	170.62	135.00	99.37	69.16	35.21	12.99
60	294.98	256.08	217.31	177.37	139.99	102.81	69.99	35.25	11.40

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011208.IES

CANDELA TABULATION - (Cont.)

65	302.14	262.45	222.64	182.61	143.59	106.25	71.29	36.42	9.64
70	307.38	266.39	226.87	185.67	145.85	106.58	72.05	36.51	7.96
75	307.13	267.99	227.92	186.01	146.61	107.04	73.51	35.12	6.79
80	304.99	266.77	226.58	185.55	146.27	107.88	75.61	35.63	5.45
85	301.05	262.96	224.10	185.00	145.44	106.12	75.23	34.83	4.53
90	295.23	258.60	220.63	180.52	142.29	103.73	73.85	32.90	4.69
95	287.43	252.52	215.64	176.53	139.27	102.06	72.63	32.52	4.78
100	278.51	244.77	209.02	172.18	136.01	99.83	69.41	30.97	3.77
105	270.38	236.76	202.44	166.52	130.89	95.43	65.47	29.13	3.44
110	259.02	227.42	194.35	159.31	125.74	91.45	59.31	25.52	4.28
115	246.65	216.90	184.83	152.52	119.83	87.76	57.04	23.26	4.36
120	233.58	204.45	174.56	143.97	113.20	81.56	50.29	19.28	4.61
125	218.57	190.57	161.03	130.22	101.18	72.47	41.74	15.89	5.20
130	195.90	169.41	142.71	115.34	89.44	64.75	35.75	13.87	5.37
135	171.38	148.29	125.23	101.34	77.87	53.02	29.26	12.45	5.78
140	148.54	128.13	108.34	86.63	65.30	43.80	24.02	11.36	6.04
145	128.13	112.49	91.75	71.88	53.65	34.37	20.33	10.44	6.37
150	109.56	92.25	75.15	59.05	42.71	29.13	18.36	10.35	7.29
155	86.13	72.26	60.48	46.77	35.37	25.65	16.60	10.52	8.55
160	64.88	54.74	45.27	37.18	29.51	21.92	15.30	10.65	9.47
165	44.80	39.57	34.75	29.13	23.35	17.69	13.58	10.65	10.31
170	31.56	28.54	25.11	21.42	17.81	14.88	12.53	11.36	11.32
175	18.86	17.65	16.22	14.80	13.62	12.74	12.11	12.15	12.15
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011208.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	30.42	N.A.	1.00
0-30	100.55	N.A.	3.30
0-40	232.37	N.A.	7.70
0-60	698.60	N.A.	23.30
0-80	1340.72	N.A.	44.70
0-90	1672.24	N.A.	55.70
10-90	1668.03	N.A.	55.60
20-40	201.95	N.A.	6.70
20-50	403.20	N.A.	13.40
40-70	776.67	N.A.	25.90
60-80	642.12	N.A.	21.40
70-80	331.68	N.A.	11.00
80-90	331.52	N.A.	11.00
90-110	600.59	N.A.	20.00
90-120	846.75	N.A.	28.20
90-130	1043.15	N.A.	34.80
90-150	1269.79	N.A.	42.30
90-180	1329.59	N.A.	44.30
110-180	729.00	N.A.	24.30
0-180	3001.82	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	4.21
10-20	26.21
20-30	70.13
30-40	131.82
40-50	201.25
50-60	264.98
60-70	310.44
70-80	331.68
80-90	331.52
90-100	314.72
100-110	285.86
110-120	246.16
120-130	196.40
130-140	140.26
140-150	86.37
150-160	43.26
160-170	14.58
170-180	1.97

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011208.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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	56
1	93	86	80	75	86	80	74	69	67	63	59	56	52	49	45	43	40	35
2	83	72	64	56	76	66	59	52	56	49	44	45	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	36	61	49	40	33	41	33	28	33	27	23	26	21	18	14
5	61	46	37	29	55	43	34	27	35	28	23	29	23	18	23	18	14	11
6	55	41	31	25	50	38	29	23	31	24	19	25	20	15	20	15	12	9
7	51	37	27	21	46	34	25	19	28	21	16	23	17	13	18	13	10	7
8	47	33	24	18	43	30	22	17	25	19	14	21	15	11	16	12	8	6
9	44	30	21	16	40	27	20	14	23	16	12	19	13	10	15	10	7	5
10	41	27	19	14	37	25	18	13	21	15	10	17	12	8	14	9	6	4

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011208.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

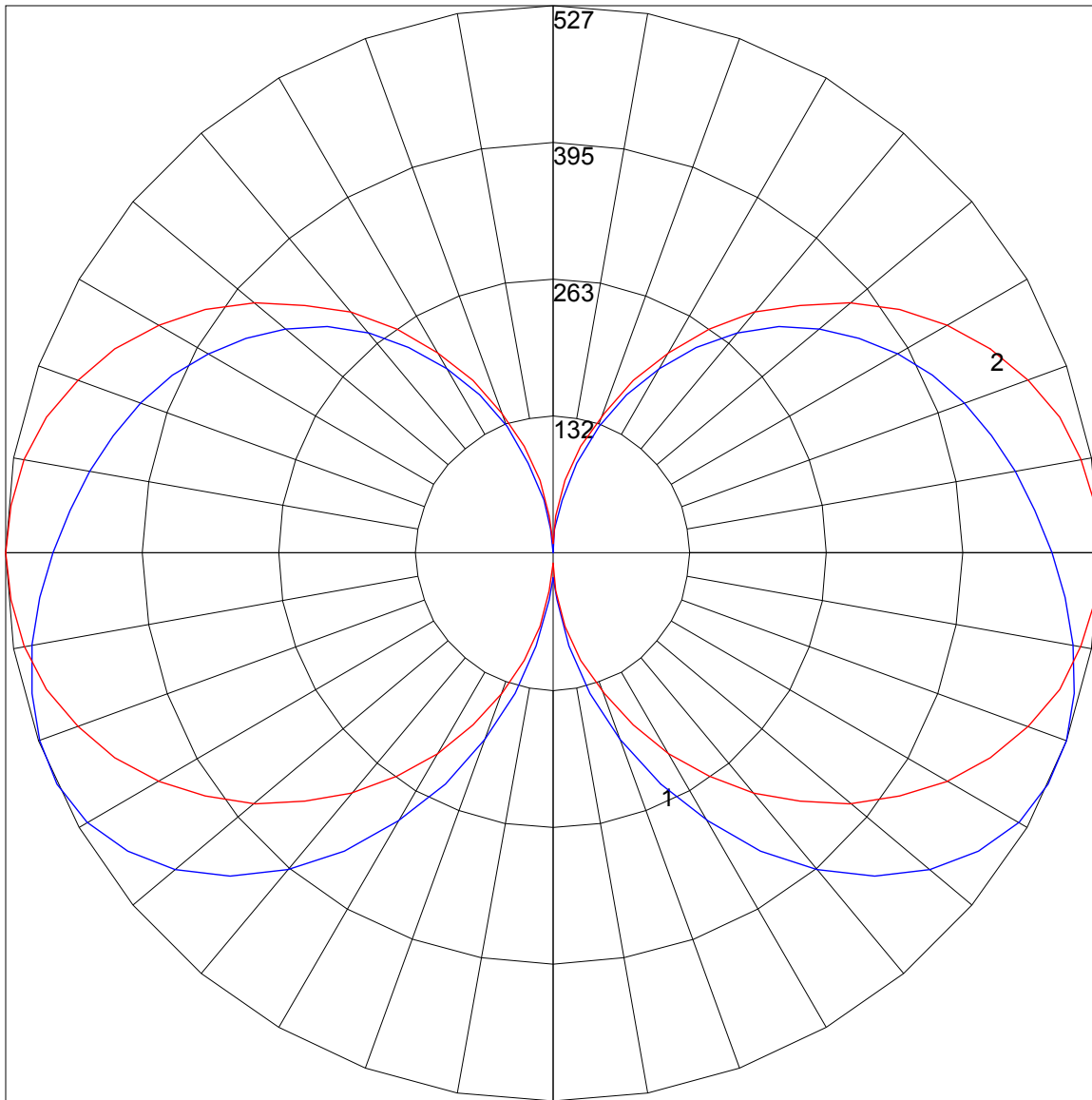
X=2H	Y=2H	18.8	19.9	19.7	20.8	22.0	7.7	8.8	8.5	9.7	10.9
	3H	22.7	23.7	23.5	24.6	25.8	9.0	10.1	9.9	11.0	12.2
	4H	24.6	25.6	25.5	26.5	27.7	9.5	10.5	10.4	11.4	12.6
	6H	26.6	27.5	27.5	28.5	29.7	9.7	10.7	10.6	11.6	12.8
	8H	27.7	28.6	28.6	29.5	30.7	9.8	10.7	10.7	11.7	12.9
	12H	28.8	29.7	29.8	30.6	31.9	9.9	10.7	10.8	11.7	12.9

UGR Viewed Endwise

4H	2H	19.0	20.0	19.9	20.9	22.1	12.5	13.5	13.4	14.4	15.6
	3H	23.1	23.9	24.0	24.9	26.1	14.3	15.2	15.2	16.1	17.3
	4H	25.2	26.0	26.1	26.9	28.2	15.0	15.8	15.9	16.7	18.0
	6H	27.4	28.1	28.3	29.1	30.3	15.4	16.1	16.4	17.1	18.4
	8H	28.6	29.2	29.5	30.2	31.5	15.6	16.2	16.5	17.2	18.5
	12H	29.8	30.5	30.8	31.5	32.7	15.6	16.3	16.6	17.3	18.5
8H	4H	25.3	26.0	26.2	26.9	28.2	17.9	18.6	18.8	19.5	20.8
	6H	27.7	28.3	28.6	29.3	30.5	18.7	19.3	19.7	20.3	21.6
	8H	29.0	29.5	29.9	30.5	31.8	19.1	19.6	20.0	20.6	21.9
	12H	30.4	30.9	31.4	31.9	33.2	19.3	19.8	20.2	20.7	22.1
12H	4H	25.2	25.9	26.2	26.9	28.1	18.7	19.4	19.7	20.4	21.6
	6H	27.7	28.2	28.6	29.2	30.5	19.9	20.4	20.8	21.4	22.7
	8H	29.0	29.5	30.0	30.5	31.8	20.4	20.8	21.3	21.8	23.1

Maximum UGR = 33.2

POLAR GRAPH



Maximum Candela = 526.67 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.)