

IES Report

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

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

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	113	117	119	120
Total Lumens, 4' rail length (1219mm)	2945	3038	3100	3131
Lumens per foot (305mm)	736	759	775	783
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: L082011207



Report No: L082011207

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

Test Summary

Total Lumens:	3099.77
Efficacy:	118.57
Color Redering Index:	95.0
Correlated Color Temperature:	3367
Input Voltage (VAC/60Hz):	119.97
Input Current (Amp):	0.2195
Input Power (W):	26.14
Input Power Factor:	0.9930
Current ATHD (%):	9.0%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	2:10

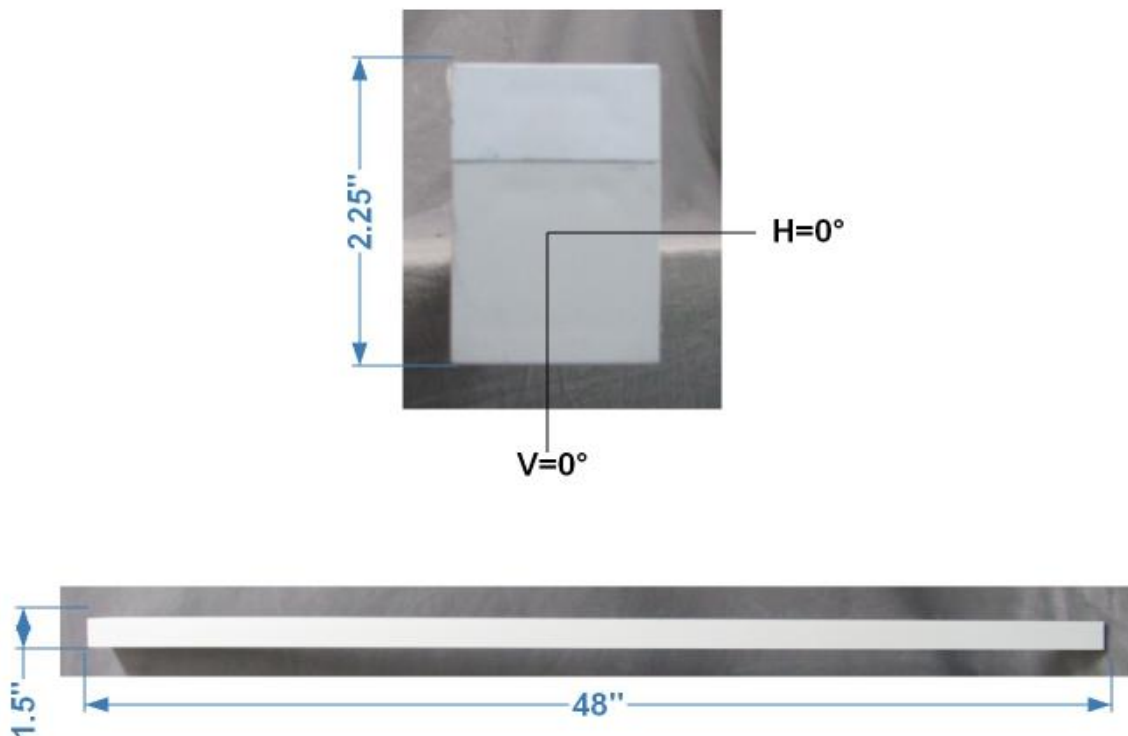
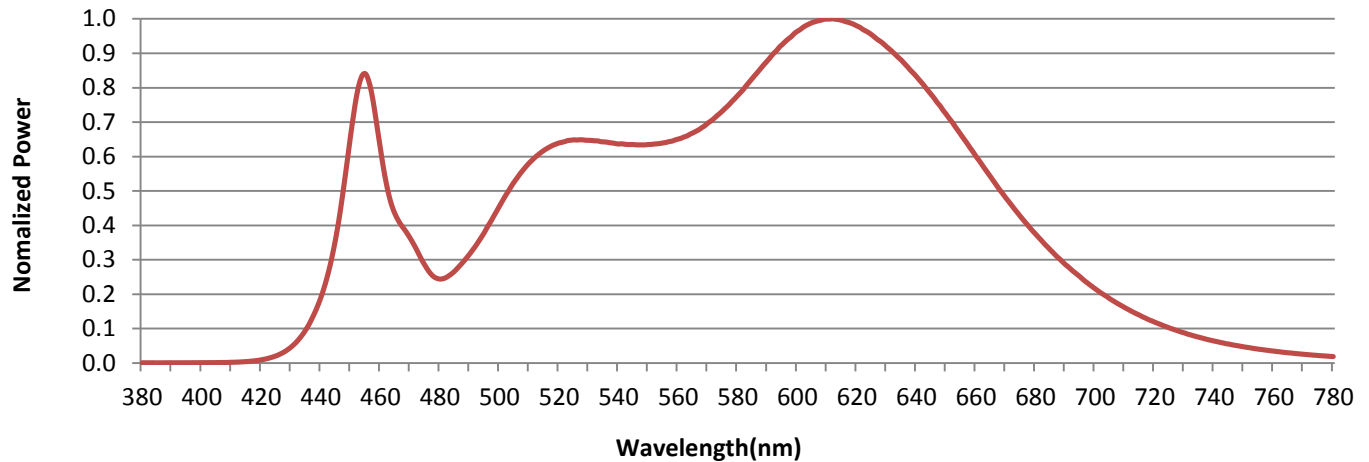


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



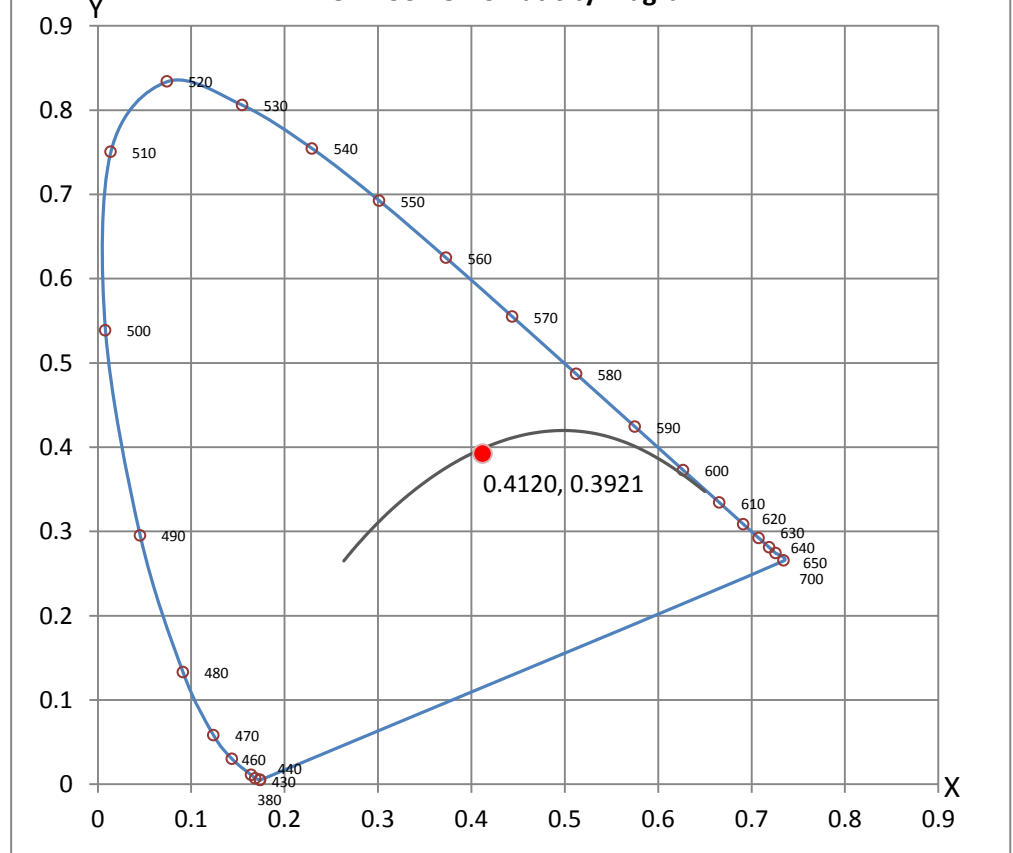
CRI & CCT

x	0.4120
y	0.3921
u'	0.2395
v'	0.5128
CRI	95.00
CCT	3367
Duv	-0.00081

R Values

R1	97.00
R2	99.02
R3	98.58
R4	98.06
R5	97.39
R6	95.86
R7	91.47
R8	82.60
R9	60.56
R10	97.70
R11	96.15
R12	79.25
R13	98.46
R14	99.39
R15	91.31

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*

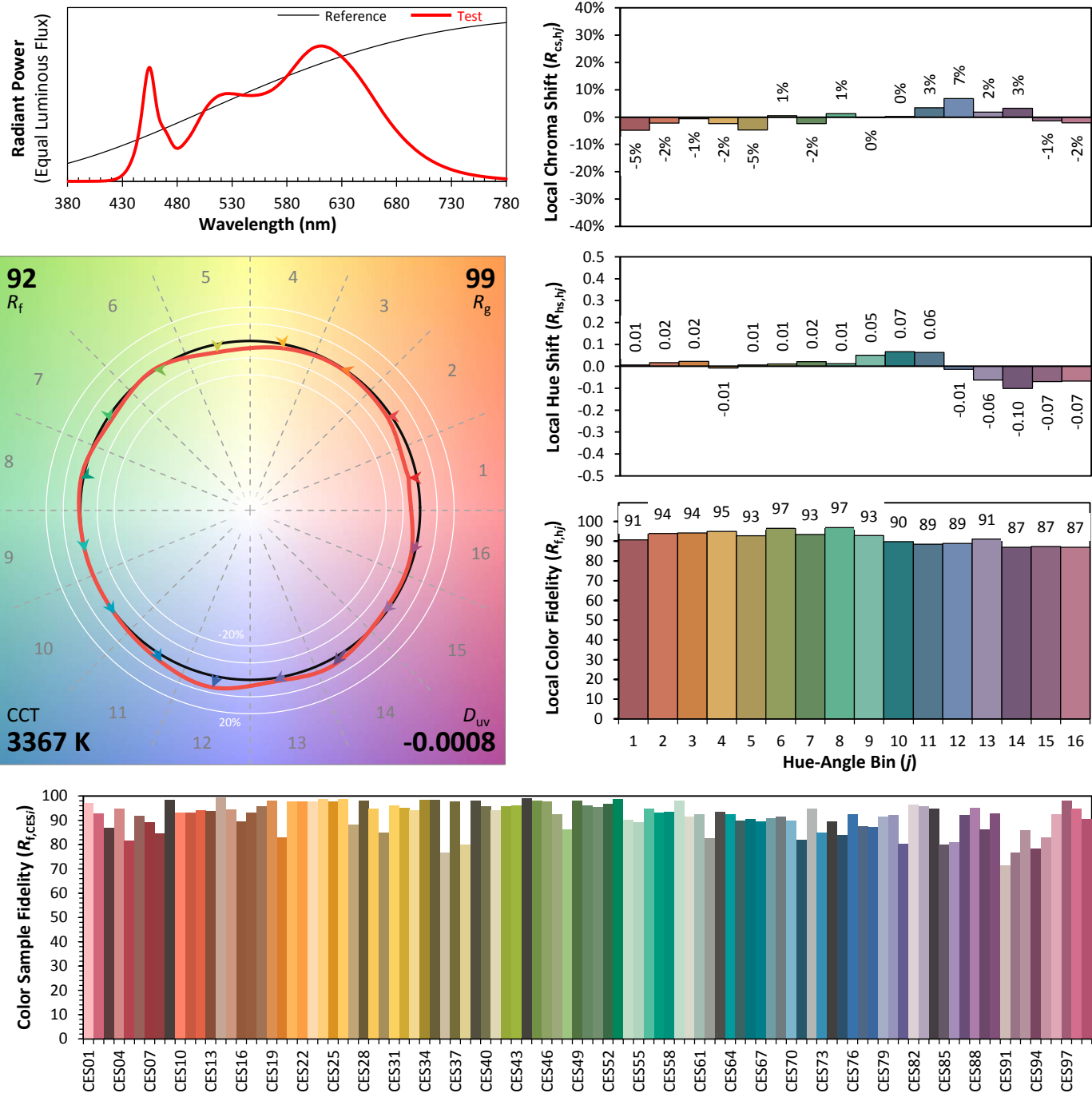
ANSI/IES TM-30-18 Color Rendition Report

Source: LED Luminaire

Date: 9/3/2020

Manufacturer: Vode Lighting

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



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

x 0.4120
 y 0.3921
 u' 0.2395
 v' 0.5128

CIE 13.3-1995 (CRI)
 R_a 95
 R_g 60



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Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L082011207.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L082011207
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUE DATE] 9/2/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-Z-SO-359-J9-WH
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board,
[MORE] square 3554, side 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] 119.97VAC, 26.14W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3100
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	119
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	5604	4261	356
55	6390	4985	351
65	6910	5517	373
75	7255	6153	464
85	7619	6854	1059

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011207.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	19.88	19.88	19.88	19.88	19.88	19.88	19.88	19.88	19.88	19.88
5	43.00	43.00	42.71	42.04	41.20	40.15	38.81	37.34	35.58	33.61
10	88.02	87.76	86.84	85.38	83.11	80.30	77.03	73.18	68.74	64.04
15	136.80	136.26	134.66	132.07	128.13	123.43	117.86	111.28	103.90	96.10
20	188.52	187.77	185.38	181.48	175.91	169.03	160.82	151.39	140.49	129.26
25	242.42	241.33	238.02	232.78	225.24	215.93	204.95	192.21	177.92	162.74
30	296.65	295.35	291.08	284.25	274.69	263.00	248.92	232.82	215.09	196.36
35	347.20	345.48	340.33	332.57	322.14	307.72	290.74	271.42	250.51	228.00
40	396.82	394.73	388.90	379.39	365.98	349.17	331.27	308.51	283.28	257.26
45	441.08	439.03	432.28	421.43	405.96	387.48	365.64	336.97	313.38	284.12
50	478.22	475.95	468.37	456.55	440.37	419.62	395.48	368.41	337.14	307.76
55	506.97	504.41	496.66	484.42	467.32	445.48	420.50	391.04	358.47	325.95
60	525.75	523.27	515.73	503.57	485.59	463.67	437.90	407.51	373.81	338.27
65	535.89	533.41	525.54	513.30	495.78	474.11	447.96	417.74	384.25	342.72
70	537.65	535.18	527.84	515.73	499.47	477.80	452.48	422.39	389.03	348.67
75	532.62	530.36	523.57	512.46	496.53	475.74	451.35	422.05	389.03	350.55
80	522.90	520.84	514.47	503.87	488.40	469.25	445.86	417.78	386.35	347.49
85	510.74	508.85	502.61	492.63	478.59	459.82	437.35	410.82	380.52	343.26
90	497.58	495.74	489.99	480.44	466.82	449.00	427.71	401.94	372.31	340.03
95	484.17	482.24	476.58	467.57	453.95	437.31	416.82	391.92	363.29	333.83
100	470.59	468.83	463.34	454.33	441.59	425.07	404.49	380.98	351.60	325.62
105	456.51	454.87	449.38	440.66	428.17	411.83	392.46	368.87	340.91	314.17
110	441.33	439.62	434.38	425.83	413.13	397.28	378.34	355.50	330.56	302.27
115	423.90	422.14	416.77	408.27	395.94	380.73	361.91	339.74	316.39	289.40
120	403.70	402.06	396.95	388.53	376.92	361.70	343.97	323.90	299.96	274.11
125	380.39	378.76	373.90	366.02	354.66	340.87	324.44	304.11	281.10	256.59
130	353.74	352.19	347.45	340.41	330.27	316.90	300.93	282.15	260.32	234.20
135	326.08	324.73	320.29	313.17	303.23	290.62	275.53	255.79	231.10	205.62
140	292.97	291.67	287.56	281.06	272.22	260.48	242.38	220.00	198.41	177.50
145	257.17	256.00	252.48	246.69	238.65	223.06	203.82	185.38	167.65	150.34
150	219.62	218.66	215.55	210.52	198.66	181.65	166.81	152.31	139.86	128.71
155	180.81	179.93	177.41	170.75	155.20	142.96	132.19	124.56	116.14	106.29
160	141.58	140.91	138.60	125.15	115.05	106.54	102.14	96.69	88.60	78.38
165	99.25	98.62	90.03	82.23	76.57	74.86	71.96	66.85	59.56	53.27
170	58.51	54.61	47.65	44.34	44.72	44.43	42.63	39.94	37.30	34.70
175	26.49	20.66	20.71	22.34	23.18	22.84	22.26	21.59	20.50	19.24
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	19.88	19.88	19.88	19.88	19.88	19.88	19.88	19.88	19.88
5	31.56	29.46	27.37	25.23	23.22	21.54	20.50	19.82	19.53
10	58.80	53.31	47.53	41.45	35.33	29.21	24.06	20.33	19.11
15	87.39	78.25	68.99	59.10	49.37	39.15	29.59	21.50	18.61
20	116.77	103.90	90.74	76.95	63.46	49.25	35.92	23.51	17.94
25	146.53	129.30	112.24	94.34	76.66	58.93	42.04	25.65	17.10
30	175.82	154.74	133.28	110.98	89.73	68.23	47.53	27.96	16.09
35	203.11	178.13	152.81	126.41	101.55	80.09	52.73	29.76	15.01
40	228.88	200.05	171.38	141.66	112.79	86.05	57.88	32.52	14.00
45	252.86	220.04	187.89	154.78	122.68	91.24	62.03	34.20	12.66
50	273.10	237.81	202.18	165.68	131.27	97.11	64.59	34.62	11.57
55	289.07	252.10	213.96	174.94	138.35	102.94	73.14	36.51	10.31
60	301.56	261.83	222.72	183.49	144.51	106.21	76.78	37.22	9.05

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CANDELA TABULATION - (Cont.)

65	310.74	270.67	229.80	187.51	147.82	108.30	76.74	36.59	8.30
70	314.97	275.15	233.79	190.83	150.42	110.52	76.49	37.05	7.88
75	315.89	275.61	234.92	193.68	152.23	111.86	76.83	37.43	6.71
80	315.64	276.08	235.17	192.17	151.43	110.44	76.53	36.38	5.62
85	311.95	273.27	232.99	190.57	150.30	110.19	75.78	35.08	6.62
90	305.87	268.07	228.76	188.31	148.62	109.01	74.44	35.29	5.45
95	299.50	262.20	224.44	184.41	144.93	105.58	73.98	34.16	4.28
100	291.37	255.75	218.49	178.92	141.16	102.81	72.42	30.93	5.03
105	281.36	247.53	210.94	173.18	136.68	100.51	70.37	29.63	4.11
110	270.71	236.97	202.77	167.61	131.86	95.56	64.46	26.99	3.69
115	258.93	227.21	194.01	158.89	124.73	90.11	57.04	22.59	3.94
120	244.72	215.05	183.37	149.84	117.48	85.08	52.31	19.11	4.19
125	228.67	198.92	167.98	137.09	106.25	78.71	44.47	16.60	4.28
130	205.79	177.33	149.21	120.33	93.38	65.05	37.55	13.79	4.53
135	180.64	155.87	131.06	105.87	81.31	55.62	30.01	11.95	4.78
140	156.00	134.87	114.29	91.03	68.53	46.44	24.69	10.77	5.20
145	134.58	118.53	96.36	75.48	56.20	36.97	20.75	9.93	5.45
150	115.76	97.70	79.30	62.53	45.52	31.06	18.82	9.77	5.95
155	91.28	76.57	63.96	49.67	37.39	26.70	16.85	9.60	6.71
160	68.36	57.92	47.36	38.31	30.05	22.26	14.67	9.14	7.21
165	46.98	40.95	35.21	29.26	23.51	17.48	12.36	8.76	7.63
170	31.56	28.29	24.85	21.04	16.93	13.33	10.31	8.72	8.05
175	17.69	16.09	14.21	12.49	11.02	9.77	9.01	8.51	8.38
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	29.82	N.A.	1.00
0-30	100.08	N.A.	3.20
0-40	232.83	N.A.	7.50
0-60	706.29	N.A.	22.80
0-80	1365.06	N.A.	44.00
0-90	1707.41	N.A.	55.10
10-90	1703.5	N.A.	55.00
20-40	203.01	N.A.	6.50
20-50	406.62	N.A.	13.10
40-70	791.03	N.A.	25.50
60-80	658.77	N.A.	21.30
70-80	341.20	N.A.	11.00
80-90	342.35	N.A.	11.00
90-110	625.34	N.A.	20.20
90-120	883.18	N.A.	28.50
90-130	1089.62	N.A.	35.20
90-150	1328.83	N.A.	42.90
90-180	1392.36	N.A.	44.90
110-180	767.01	N.A.	24.70
0-180	3099.77	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	3.91
10-20	25.91
20-30	70.26
30-40	132.75
40-50	203.61
50-60	269.85
60-70	317.57
70-80	341.20
80-90	342.35
90-100	326.93
100-110	298.41
110-120	257.83
120-130	206.44
130-140	147.82
140-150	91.38
150-160	46.03
160-170	15.53
170-180	1.97

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L082011207.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	55
1	93	86	80	75	86	80	74	69	67	63	59	55	52	49	45	42	40	34
2	82	72	63	56	75	66	59	52	55	49	44	45	40	36	36	32	29	24
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	22	25	21	17	14
5	60	46	37	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	8
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	16	25	18	14	20	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	14	37	25	17	12	21	15	10	17	12	8	13	9	6	4

IES INDOOR REPORT
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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

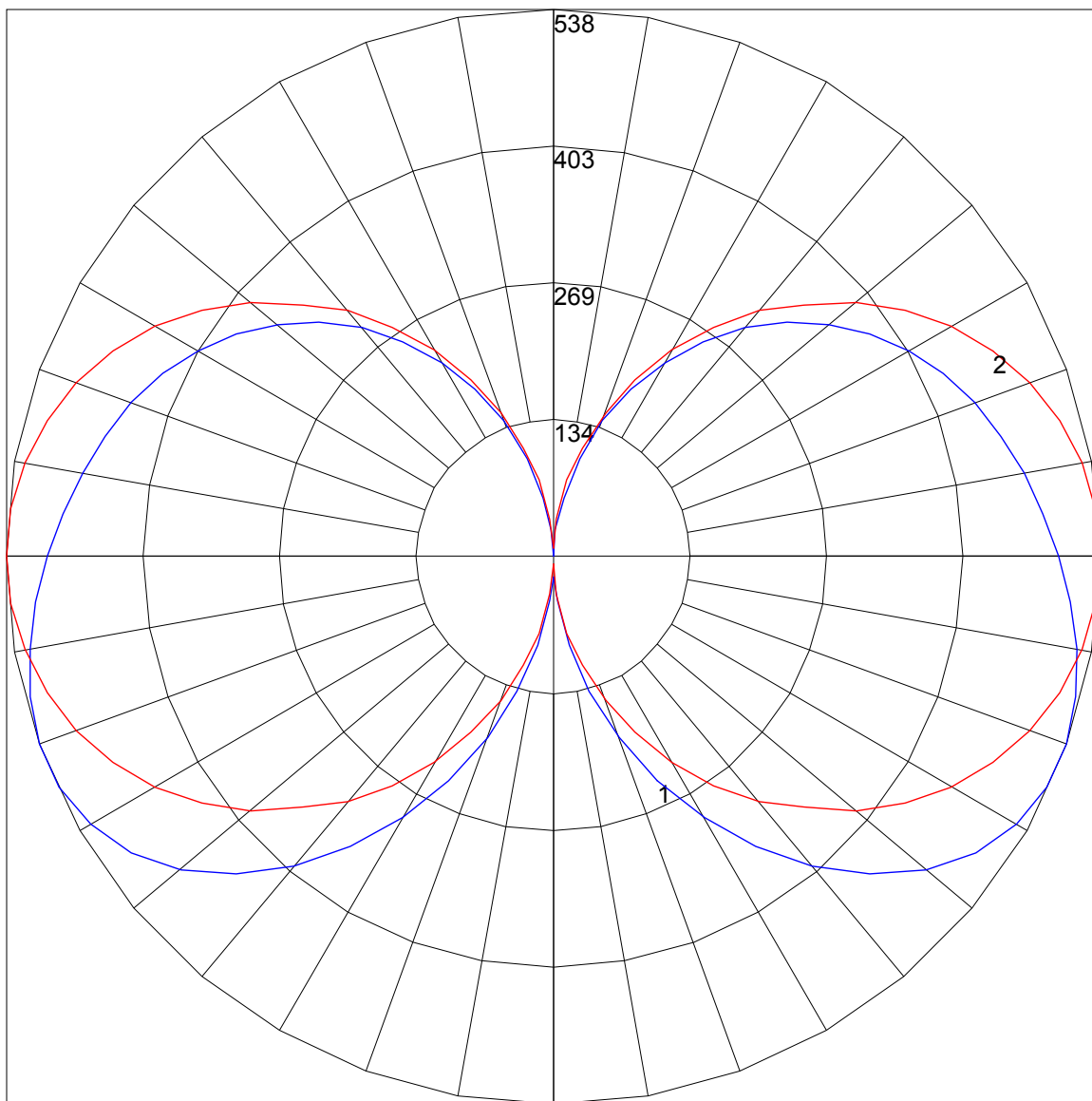
X=2H	Y=2H	18.8	19.9	19.7	20.8	22.0	7.8	8.9	8.6	9.8	11.0
	3H	22.6	23.7	23.5	24.6	25.8	9.1	10.2	10.0	11.1	12.3
	4H	24.6	25.6	25.5	26.5	27.7	9.6	10.6	10.5	11.5	12.7
	6H	26.6	27.6	27.6	28.5	29.7	9.9	10.8	10.8	11.7	13.0
	8H	27.7	28.6	28.6	29.6	30.8	9.9	10.8	10.9	11.8	13.0
	12H	28.9	29.7	29.8	30.7	31.9	10.0	10.8	10.9	11.8	13.0

UGR Viewed Endwise

4H	2H	18.9	19.9	19.8	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	16.2	17.4
	4H	25.2	26.0	26.1	26.9	28.2	15.0	15.8	15.9	16.8	18.0
	6H	27.4	28.1	28.3	29.1	30.4	15.5	16.2	16.4	17.2	18.4
	8H	28.6	29.3	29.5	30.3	31.5	15.6	16.3	16.6	17.3	18.5
	12H	29.9	30.5	30.9	31.5	32.8	15.7	16.3	16.7	17.3	18.6
8H	4H	25.3	26.0	26.2	26.9	28.2	17.9	18.6	18.9	19.6	20.8
	6H	27.7	28.3	28.7	29.3	30.6	18.8	19.4	19.8	20.4	21.7
	8H	29.0	29.5	30.0	30.5	31.8	19.1	19.7	20.1	20.7	21.9
	12H	30.5	31.0	31.4	31.9	33.3	19.3	19.8	20.3	20.8	22.1
12H	4H	25.3	25.9	26.2	26.9	28.2	18.8	19.4	19.8	20.4	21.7
	6H	27.7	28.2	28.7	29.2	30.5	19.9	20.5	20.9	21.5	22.8
	8H	29.1	29.6	30.0	30.6	31.9	20.4	20.9	21.4	21.9	23.2

Maximum UGR = 33.3

POLAR GRAPH



Maximum Candela = 537.65 Located At Horizontal Angle = 0, Vertical Angle = 70
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (70) (Through Max. Cd.)