



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

Report No: L081910682



Report No: L081910682

Issue Date: 9/13/2019

Report Prepared For: Number Eight Lighting Company
526 Portal Street, Cotati, CA 94931

Model Number: 203-R-HI-3000-40/DIM1-2-SO/FLR-2-WW-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: 8/16/19

Date of Tests: 9/10/19 - 9/13/19

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:	Number Eight Lighting Company
Model Number:	203-R-HI-3000-40/DIM1-2-SO/FLR-2-WW-WH
Driver Model Number:	INTUITIVE SYSTEMS ISD-701-350-15-D

Test Summary

Total Lumens:	988.31
Efficacy:	68.85
Color Redering Index:	91.4
Correlated Color Temperature:	2966
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.1203
Input Power (W):	14.36
Input Power Factor:	0.9948
Current ATHD (%):	5.5%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:05
Total Operating Time (Hours):	2:20

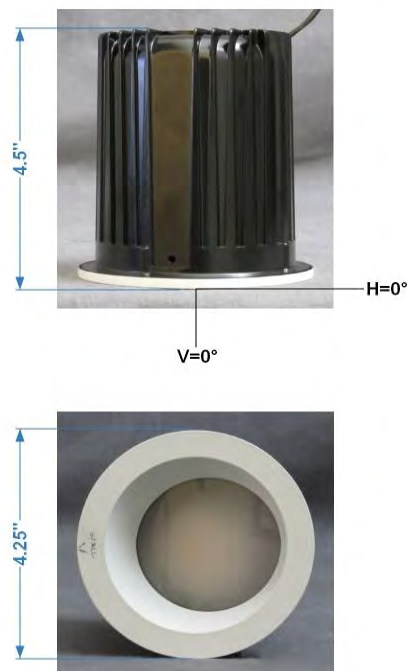
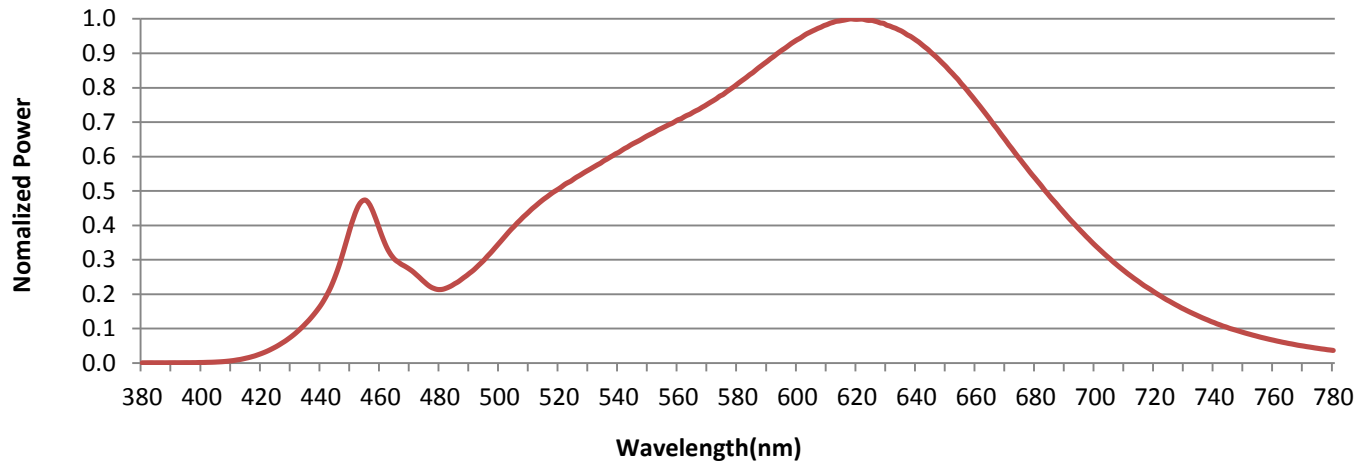


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



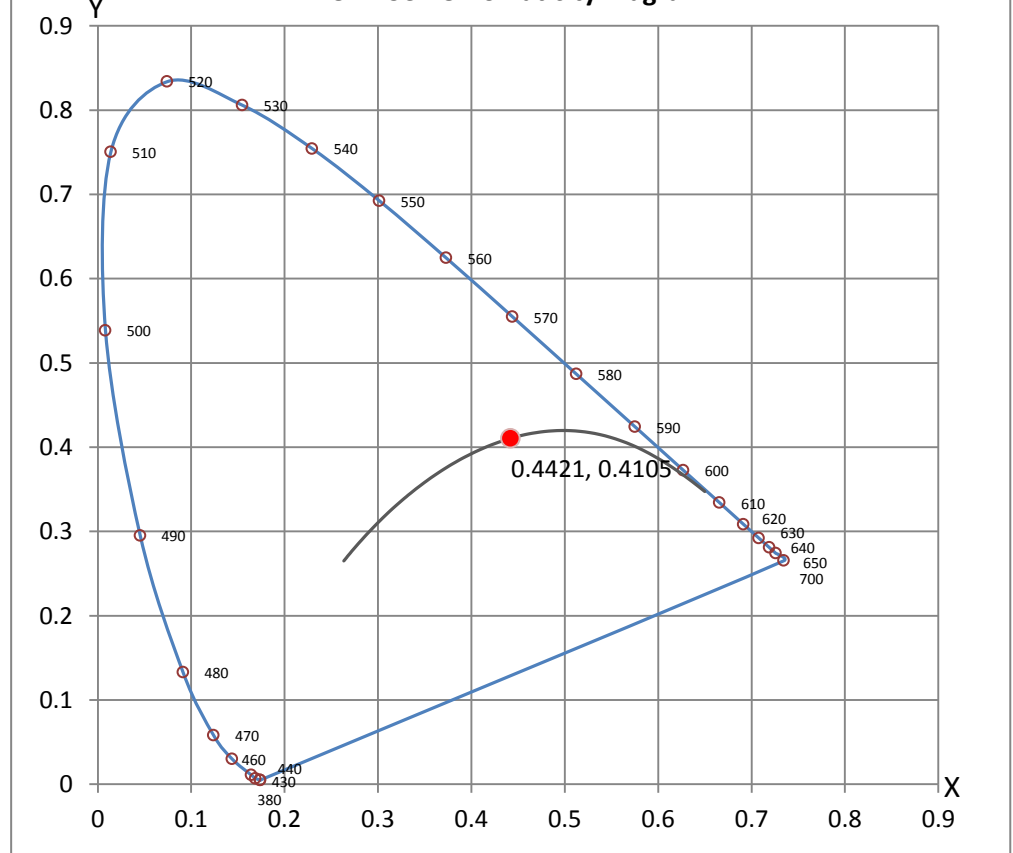
CRI & CCT

x	0.4421
y	0.4105
u'	0.2511
v'	0.5247
CRI	91.40
CCT	2966
Duv	0.00184

R Values

R1	91.04
R2	94.50
R3	96.76
R4	91.59
R5	90.43
R6	93.23
R7	92.67
R8	80.97
R9	56.13
R10	86.22
R11	91.58
R12	77.16
R13	91.77
R14	97.41
R15	87.09

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: 11*



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Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L081910682.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L081910682
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 9/13/2019
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 203-R-HI-3000-40/DIM1-2-SO/FLR-2-WW-WH
[LUMINAIRE] LED Recessed Wall Wash Downlight, 3000K 90+ CRI, 40° Beam Spread,
[MORE] Standard Output 1% Dimming Driver, 3.25" x 2.5" Aperture Rround Wall Wash Trim
[BALLASTCAT] INTUITIVE SYSTEMS ISD-701-350-15-D
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120.0VAC, 14.36W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	988
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	69
Total Luminaire Watts	14.36
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.36
Spacing Criterion (90-270)	1.06
Spacing Criterion (Diagonal)	1.20
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.27 ft (Diameter)
Luminous Width (90-270)	0.27 ft (Diameter)
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	9485	12535	54261
55	8069	9113	28603
65	7751	7226	10284
75	7424	6996	5109
85	8318	7413	5431

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L081910682.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>
0.0	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06
2.5	524.91	528.09	528.85	529.43	531.03	533.04	535.72	538.57	542.51	546.70
5.0	449.30	449.13	453.82	455.84	459.27	463.13	468.24	474.53	481.74	489.87
7.5	377.88	378.30	380.73	386.51	390.87	396.91	404.03	412.50	422.73	434.21
10.0	313.50	314.17	316.60	323.31	328.67	335.97	344.35	355.00	366.98	381.15
12.5	257.01	257.84	260.53	267.32	273.10	280.98	290.45	302.10	316.10	331.52
15.0	209.56	210.40	212.75	219.03	225.15	233.03	242.84	254.74	269.49	285.84
17.0	177.54	178.13	180.64	186.51	192.88	199.67	209.31	221.38	235.55	252.65
19.0	150.72	151.55	153.82	159.10	164.38	171.59	180.47	191.96	205.54	222.39
21.0	128.42	128.92	131.02	135.63	140.41	147.11	155.49	166.31	179.47	195.23
23.0	110.15	110.73	112.41	116.18	120.87	126.66	134.12	144.09	156.58	171.17
25.0	95.39	95.81	97.40	100.51	104.36	109.47	116.60	125.23	135.96	149.71
27.0	84.16	84.24	85.42	87.60	91.37	95.98	101.85	109.64	119.95	132.44
29.0	74.27	74.69	75.78	77.79	81.14	84.33	89.19	96.15	105.12	116.35
31.0	66.39	66.72	67.65	69.24	71.67	75.02	80.30	85.00	92.79	102.69
33.0	59.85	60.02	60.86	62.28	64.29	66.98	70.83	75.86	81.98	90.61
35.0	54.32	54.49	55.16	56.25	57.84	60.27	63.54	67.73	73.68	80.81
37.0	49.62	49.79	50.38	51.30	52.47	54.65	57.34	61.02	65.89	72.17
39.0	45.43	45.60	46.10	46.86	47.95	49.71	52.06	55.07	59.35	64.96
41.0	41.91	41.91	42.42	43.09	43.84	45.43	47.36	49.96	53.48	58.17
43.0	38.56	38.73	39.15	39.65	40.24	41.49	43.09	45.43	48.45	52.56
45.0	35.71	35.79	36.04	36.55	37.05	37.97	39.48	41.33	43.92	47.19
50.0	29.67	29.67	29.84	29.93	30.18	30.85	31.69	32.86	34.37	36.55
55.0	24.64	24.73	24.73	24.81	24.73	24.98	25.48	25.99	26.74	27.83
60.0	20.96	20.87	20.79	20.71	20.54	20.45	20.54	20.54	20.71	21.04
65.0	17.44	17.35	17.27	17.27	16.93	16.77	16.68	16.51	16.35	16.26
70.0	13.75	13.83	13.75	13.66	13.50	13.41	13.24	13.08	12.83	12.66
75.0	10.23	10.31	10.14	10.06	10.14	10.06	9.98	9.89	9.72	9.64
80.0	7.04	6.96	7.04	6.87	6.79	6.79	6.71	6.62	6.62	6.45
85.0	3.86	3.77	3.77	3.69	3.69	3.60	3.60	3.52	3.44	3.44
90.0	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>	<u>95</u>
0.0	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06
2.5	551.48	556.76	561.29	566.65	572.52	577.80	582.83	588.11	593.22	598.00
5.0	499.01	508.73	518.79	530.36	541.92	553.83	565.56	577.21	589.95	600.94
7.5	447.70	461.45	476.62	492.97	509.73	527.92	545.78	564.22	581.91	601.19
10.0	397.24	414.68	433.96	455.33	477.38	499.68	523.73	548.21	572.52	598.17
12.5	350.05	370.17	392.05	417.28	443.43	470.59	500.09	528.51	560.28	591.30
15.0	305.79	327.92	352.15	378.80	409.06	441.59	474.19	507.81	544.27	580.31
17.0	271.84	295.40	321.13	350.89	382.24	417.03	453.24	491.21	531.28	570.42
19.0	242.50	265.22	291.88	322.22	355.50	391.96	431.78	472.52	514.68	559.36
21.0	214.67	238.06	263.96	295.06	329.01	366.31	408.22	450.05	496.91	545.36
23.0	188.86	211.57	237.89	269.33	303.70	343.01	384.84	429.26	479.73	528.01
25.0	166.81	188.10	213.75	244.26	278.63	318.11	362.54	408.81	459.69	509.06
27.0	148.45	167.82	192.13	221.88	255.66	294.22	338.82	381.74	436.30	491.63
29.0	130.35	148.87	171.67	200.00	232.70	271.67	314.42	362.46	415.10	467.49
31.0	115.68	132.11	153.23	178.88	210.90	247.62	290.95	337.90	387.44	445.02
33.0	102.10	117.27	136.30	160.94	190.62	226.58	268.82	314.68	365.31	417.70
35.0	90.78	104.45	121.46	143.09	171.00	203.61	244.10	288.44	338.90	392.13
37.0	80.56	92.37	107.71	128.08	153.06	184.41	222.39	265.05	311.91	363.04
39.0	72.51	82.48	95.73	113.25	135.63	165.05	199.33	238.90	284.42	334.88

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CANDELA TABULATION - (Cont.)

41.0	64.80	75.44	84.83	100.84	120.96	146.86	179.22	215.93	257.76	303.61
43.0	58.01	65.63	75.78	88.52	106.21	129.09	158.01	191.20	230.52	274.94
45.0	51.80	58.17	66.81	78.46	93.88	114.00	139.82	169.74	204.28	243.09
50.0	39.40	43.17	48.62	56.16	65.97	78.80	96.31	117.35	141.75	169.91
55.0	29.26	31.27	34.20	38.14	43.59	50.80	60.69	73.01	87.35	104.61
60.0	21.54	22.21	23.22	24.81	26.91	30.09	34.54	40.24	46.94	55.24
65.0	16.09	16.09	16.09	16.26	16.77	17.60	18.94	20.79	23.14	26.32
70.0	12.41	12.15	11.74	11.57	11.32	11.07	11.15	11.23	11.40	11.65
75.0	9.39	9.22	8.97	8.72	8.38	8.05	7.71	7.38	7.04	6.79
80.0	6.29	6.12	6.04	5.87	5.62	5.45	5.28	5.11	4.95	4.69
85.0	3.35	3.19	3.19	3.02	2.93	2.85	2.68	2.60	2.52	2.35
90.0	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>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
0.0	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06	593.06
2.5	603.03	607.56	613.68	618.29	623.74	627.51	631.95	637.48	642.76	646.28
5.0	612.84	625.58	636.81	648.21	660.03	670.17	680.32	690.71	700.35	708.73
7.5	619.96	638.74	656.26	674.37	692.14	707.81	723.65	739.50	753.24	765.31
10.0	622.48	647.63	673.28	697.00	719.55	741.17	762.55	783.50	801.02	817.62
12.5	622.48	652.91	684.09	713.85	742.68	769.67	793.31	819.97	841.43	860.45
15.0	617.03	654.08	691.30	725.58	760.45	791.55	820.47	847.88	871.94	893.15
17.0	610.24	654.08	692.97	730.86	770.51	804.38	835.31	863.72	889.88	912.51
19.0	603.70	649.55	692.05	734.55	773.86	810.16	844.36	874.96	900.94	924.24
21.0	592.72	640.25	686.52	730.95	774.03	813.18	847.88	878.81	904.63	928.18
23.0	577.80	628.93	679.31	724.91	771.01	809.99	845.53	877.14	902.28	923.91
25.0	563.38	616.28	667.32	715.02	761.21	802.20	836.82	867.41	891.64	912.17
27.0	544.61	598.84	654.08	702.11	746.96	787.28	822.06	850.14	873.78	892.56
29.0	522.06	577.80	632.29	681.57	729.69	769.17	801.61	829.61	850.31	865.74
31.0	500.18	554.83	610.07	660.11	704.71	742.93	776.38	799.68	817.45	832.29
33.0	472.68	530.86	583.42	631.78	677.89	714.27	743.60	764.81	780.23	791.22
35.0	446.11	500.18	552.99	600.77	643.43	679.31	706.47	724.74	736.23	745.20
37.0	407.22	470.34	520.46	566.40	607.64	640.08	664.22	679.48	688.45	692.97
39.0	385.76	434.96	484.67	527.84	567.07	595.99	617.36	629.77	635.64	637.23
41.0	352.82	398.08	445.94	486.68	523.48	550.05	568.16	576.71	578.97	578.05
43.0	319.12	363.29	401.18	443.18	475.87	499.76	515.18	521.13	520.63	517.11
45.0	283.49	326.66	365.14	393.72	427.59	447.70	459.44	463.04	460.19	453.99
50.0	199.50	229.68	257.51	282.15	300.85	312.75	317.95	316.35	310.07	300.68
55.0	122.05	139.48	157.17	170.67	180.39	185.34	185.50	180.73	173.10	163.88
60.0	63.79	72.51	80.97	87.51	91.79	93.46	92.46	88.60	83.32	77.54
65.0	29.67	33.19	36.55	39.15	40.74	40.91	39.90	37.64	34.96	31.85
70.0	12.07	12.57	12.83	12.99	12.99	12.66	12.07	11.32	10.65	9.81
75.0	6.54	6.20	5.87	5.62	5.28	5.11	4.78	4.53	4.36	4.11
80.0	4.44	4.28	3.94	3.77	3.52	3.35	3.10	2.93	2.77	2.68
85.0	2.26	2.10	2.10	1.93	1.76	1.76	1.68	1.51	1.51	1.43
90.0	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>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	593.06	593.06	593.06	593.06	593.06	593.06	593.06
2.5	650.39	654.33	655.25	657.01	659.11	659.78	659.86
5.0	716.44	722.73	728.18	732.29	735.31	737.15	736.81
7.5	777.72	787.61	794.82	800.86	804.88	808.15	809.24
10.0	832.54	844.53	854.17	861.96	867.24	870.26	871.27

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L081910682.IES

CANDELA TABULATION - (Cont.)

12.5	877.89	892.14	902.70	912.26	917.29	921.90	923.07
15.0	912.09	927.51	939.75	949.48	955.85	960.29	961.46
17.0	931.62	948.39	960.54	969.34	975.38	980.24	982.08
19.0	943.69	958.86	971.61	980.41	986.86	991.05	992.31
21.0	946.96	961.80	973.45	981.66	987.45	991.39	992.98
23.0	941.01	954.51	966.41	973.20	978.39	981.50	982.42
25.0	928.02	940.09	949.98	955.26	958.78	961.88	962.30
27.0	906.73	916.87	923.74	927.51	931.29	932.71	933.13
29.0	876.97	884.68	890.04	892.81	894.40	894.99	895.58
31.0	840.25	844.11	847.88	848.05	848.97	848.89	848.64
33.0	797.17	798.59	799.26	798.17	798.59	797.00	796.66
35.0	747.46	746.29	744.11	741.34	739.75	738.24	737.48
37.0	691.72	688.70	684.93	680.48	677.72	675.45	674.62
39.0	633.12	628.01	622.48	615.27	612.34	608.90	607.39
41.0	571.18	563.80	557.01	549.80	543.60	540.00	538.15
43.0	508.64	499.09	490.20	481.99	477.13	472.18	471.26
45.0	443.68	433.20	423.56	414.93	408.81	403.95	402.52
50.0	288.61	276.70	266.06	257.01	249.96	246.11	245.27
55.0	153.48	144.01	135.63	128.75	124.48	121.55	120.54
60.0	71.25	65.89	61.19	57.59	55.41	53.82	53.31
65.0	28.92	26.41	24.39	22.80	21.79	21.21	20.96
70.0	9.22	8.55	8.22	7.96	7.71	7.63	7.54
75.0	3.94	3.86	3.77	3.69	3.69	3.69	3.69
80.0	2.52	2.43	2.43	2.35	2.35	2.35	2.35
85.0	1.43	1.43	1.43	1.34	1.34	1.34	1.34
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L081910682.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	195.64	N.A.	19.80
0-30	420.56	N.A.	42.60
0-40	661.92	N.A.	67.00
0-60	950.96	N.A.	96.20
0-80	985.66	N.A.	99.70
0-90	988.31	N.A.	100.00
10-90	932.16	N.A.	94.30
20-40	466.28	N.A.	47.20
20-50	668.33	N.A.	67.60
40-70	315.73	N.A.	31.90
60-80	34.70	N.A.	3.50
70-80	8.01	N.A.	0.80
80-90	2.65	N.A.	0.30
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	988.31	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	56.15
10-20	139.49
20-30	224.93
30-40	241.36
40-50	202.05
50-60	86.99
60-70	26.69
70-80	8.01
80-90	2.65
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

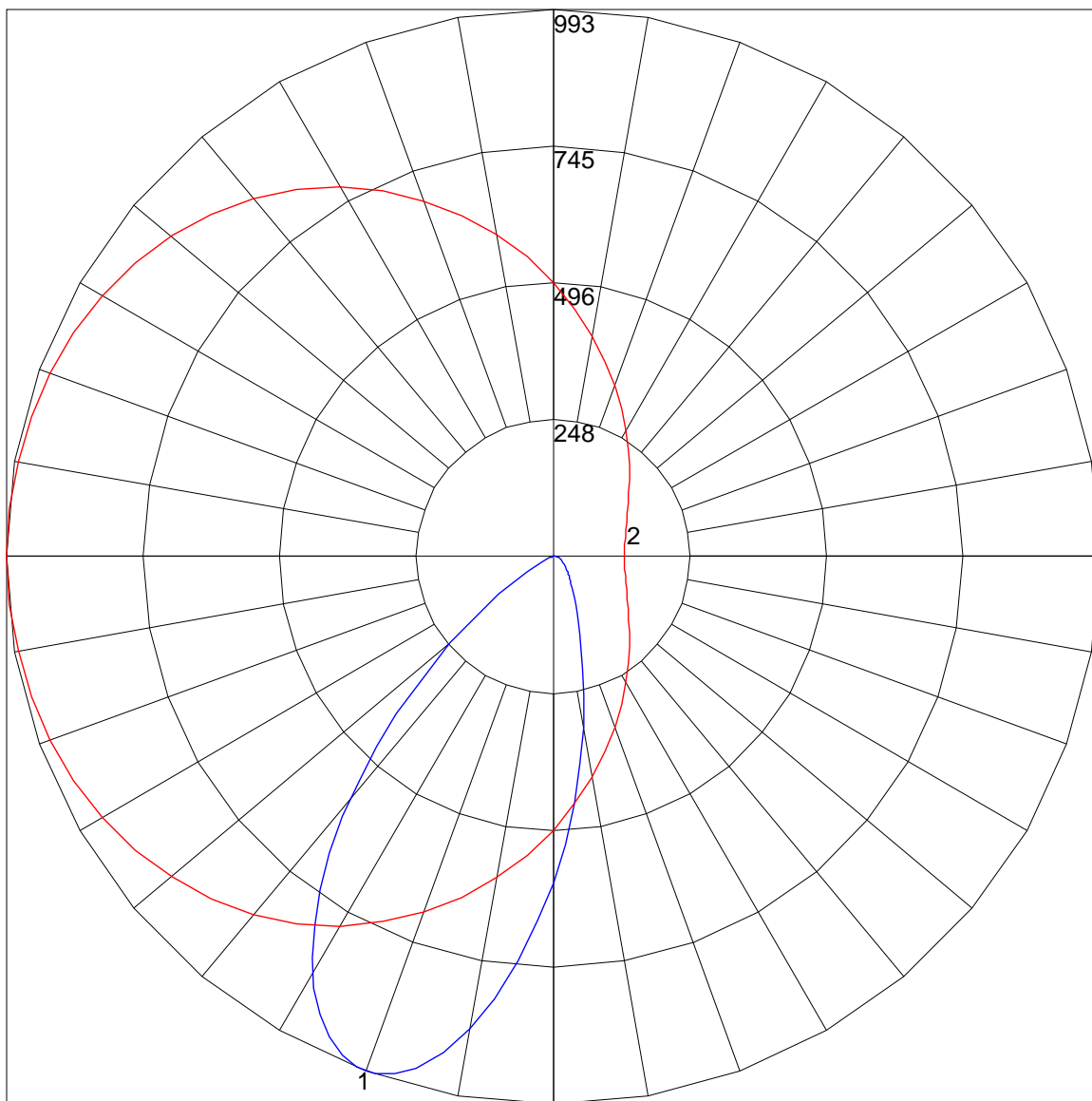
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L081910682.IES

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	103	109	106	103	101	102	100	98	98	96	95	95	93	92	90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	74	80	76	73	71
4	90	81	74	68	88	80	73	68	77	72	67	75	70	66	73	69	65	64
5	84	74	66	61	82	73	66	61	71	65	60	69	64	59	67	63	59	57
6	79	67	60	55	77	67	59	54	65	59	54	63	58	53	62	57	53	51
7	74	62	54	49	72	61	54	49	60	53	49	58	53	48	57	52	48	46
8	69	57	50	45	67	56	49	45	55	49	44	54	48	44	53	48	44	42
9	65	53	46	41	63	52	45	41	51	45	40	50	44	40	49	44	40	39
10	61	49	42	37	60	49	42	37	48	41	37	47	41	37	46	41	37	35

POLAR GRAPH



Maximum Candela = 992.98 Located At Horizontal Angle = 180, Vertical Angle = 21
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (21) (Through Max. Cd.)