



8165 E Kaiser Blvd. Anaheim, CA 92808
 p. 714.282.2270
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Test #: L12132801

Date: 12/18/2013



NVLAP LAB CODE 200927-0

Test Report: L12132801

Model Number: LW40-BRZ-110-00

Report Prepared For: LUMATEQ

Test: Electrical and Photometric tests as required by the IESNA test standards.

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. Fixture catalog number is LW40-BRZ-110-00. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 12/10/13

Date of Tests: 12/17/13 - 12/17/13

Seasoning of Sample SSL: 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-S1	01/04/14
Xitron Power Analysis System	2503AH	MT-EL01	01/09/14
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/14
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

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

LM-79 Test Summary

Manufacturer:	LUMATEQ
Model Number:	LW40-BRZ-110-00
LAMPCAT:	N/A
Driver Model Number:	YIGUANG TECH LP40W-36-C1100
Total Lumens:	3250.59
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.30
Input Power (W):	35.59
Input Power Factor:	0.98
Total Harmonic Distortion @ 120V(%):	20%
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	91
Color Rendering Index (CRI):	76
Correlated Color Temperature (K):	5444
Chromaticity Coordinate x:	0.3339
Chromaticity Coordinate y:	0.3529
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	0:55
Total Operating Time (Hours):	2:05
Off State Power(W):	0.00

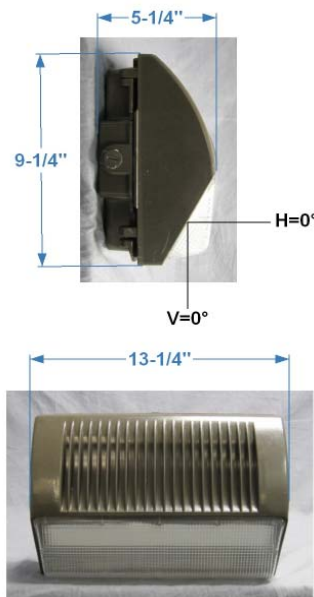
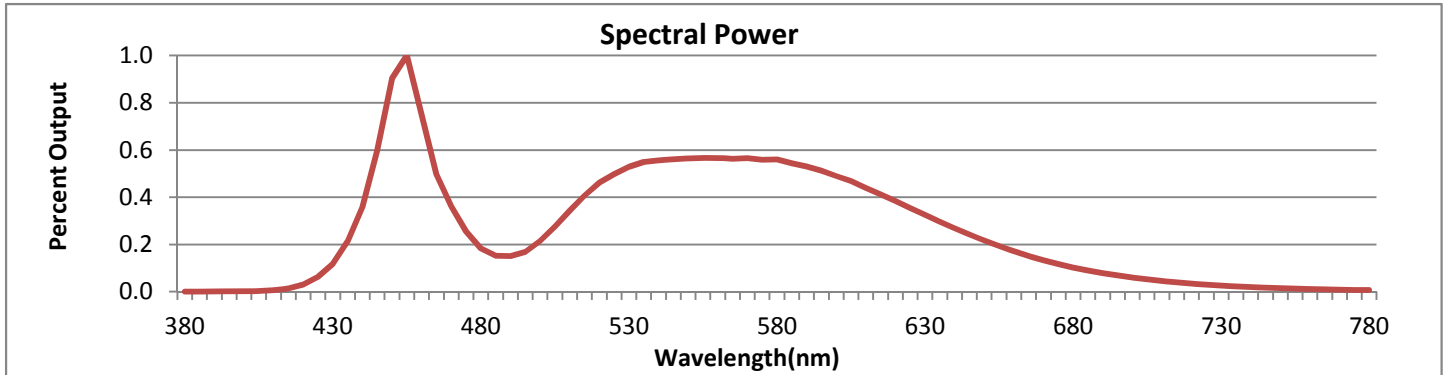


FIG.1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



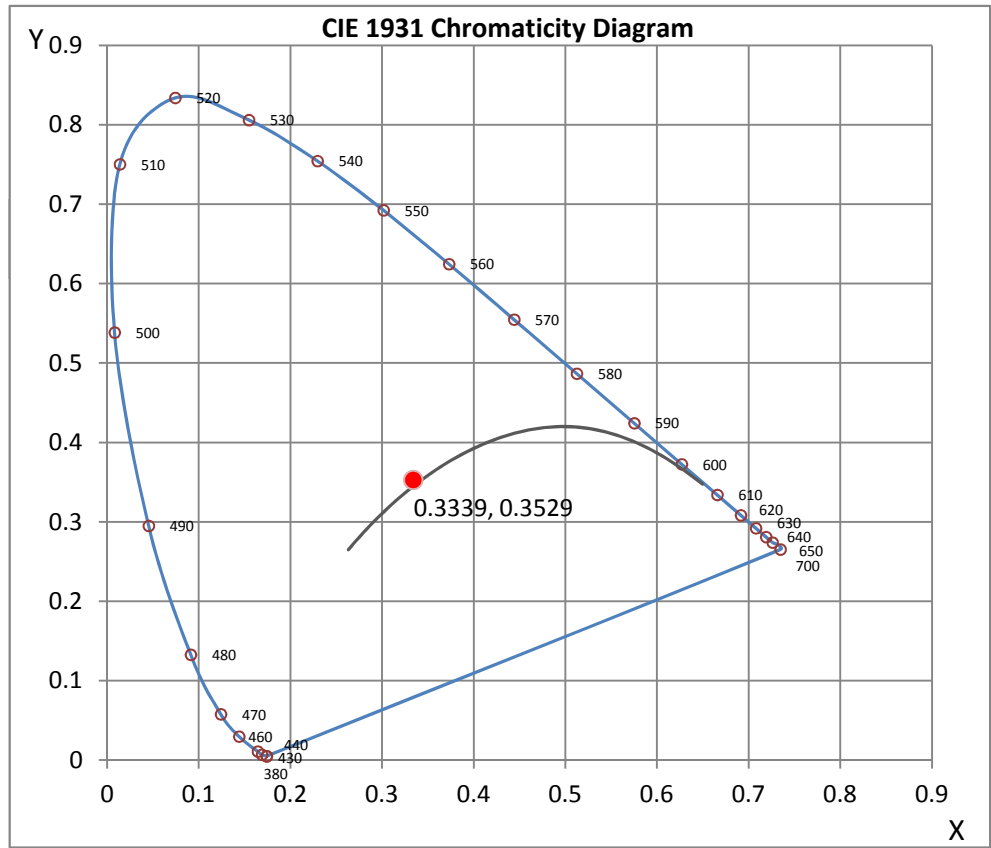
Wavelength	W/m ² nm	440	0.0223	510	0.0215	580	0.0349	650	0.0135	720	0.0021
380	0.0000	450	0.0565	520	0.0288	590	0.0331	660	0.0107	730	0.0016
390	0.0001	460	0.0468	530	0.0330	600	0.0306	670	0.0083	740	0.0012
400	0.0001	470	0.0225	540	0.0347	610	0.0274	680	0.0064	750	0.0009
410	0.0004	480	0.0114	550	0.0352	620	0.0239	690	0.0049	760	0.0007
420	0.0019	490	0.0094	560	0.0354	630	0.0203	700	0.0037	770	0.0005
430	0.0074	500	0.0134	570	0.0353	640	0.0168	710	0.0028	780	0.0005

CRI & CCT

x	0.3339
y	0.3529
u'	0.2034
v'	0.4836
CRI	75.70
CCT	5444
Duv	0.00534

R Values

R1	73.04
R2	81.27
R3	85.42
R4	74.58
R5	72.53
R6	72.64
R7	85.20
R8	61.13
R9	-17.35
R10	53.43
R11	70.47
R12	42.63
R13	74.96
R14	91.47



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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 : THI NGUYEN

Test Report Released by:

Test Report Reviewed by:

Jeff Ahn
 Engineering Manager

Steve Kang
 Quality Assurance

**Attached are photometric data reports. Total number of pages: 12*

**All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L12132801.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L12132801
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUE DATE] 12/18/2013
[MANUFAC] LUMATEQ
[LUMCAT] LW40-BRZ-110-00
[LUMINAIRE] 5-1/4"L. X 13-1/4"W. X 9-1/4"H. LED FIXTURE
[MORE] PRISMATIC LENS
[BALLASTCAT] YIGUANG TECH LP40W-36-C1100
[BALLAST] INPUT: 90-305VAC, 50/60HZ, 0.6A OUTPUT: 22-36VDC, 1100mA
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[_INPUT] 120VAC, 35.59W
[_TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3251
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	91
Total Luminaire Watts	35.59
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	2.26
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.46
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.17 ft
Luminous Width (90-270)	1.04 ft
Luminous Height	0.29 ft

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L12132801.IES

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	31090	25733	25358
55	32002	24179	21918
65	35191	24085	18013
75	34072	25205	13359
85	35646	24777	9500

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L12132801.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	573	573	573	573	573	573	573	573	573	573
5	745	744	743	735	730	723	715	706	696	685
10	841	840	836	831	825	817	807	796	783	769
15	874	874	872	870	866	862	856	850	844	836
20	832	832	836	841	850	858	863	861	856	846
25	801	801	803	810	821	836	852	866	852	834
30	812	802	789	771	766	781	812	821	820	822
35	772	786	813	829	805	753	725	769	786	796
40	889	871	854	849	864	858	793	777	765	790
45	978	962	945	900	868	859	818	782	752	719
50	969	959	967	962	927	888	845	796	756	713
55	1037	995	965	960	947	892	856	798	752	685
60	1015	1009	1002	974	893	882	829	775	736	681
65	1139	1106	1069	1078	999	960	881	819	756	671
70	1104	1057	1055	1019	982	936	893	839	794	702
75	1068	1017	1034	954	932	899	838	793	734	669
80	1124	1066	998	976	933	886	830	775	718	638
85	1047	991	964	935	881	841	776	733	673	605
90	913	874	851	822	782	755	708	664	607	550
95	928	866	852	825	782	753	695	633	580	518
100	871	790	811	756	713	673	618	553	505	448
105	658	628	751	619	655	613	559	514	449	396
110	533	570	671	505	560	501	454	411	362	313
115	460	466	499	452	437	401	373	333	297	253
120	413	401	385	372	351	324	296	256	226	199
125	302	293	286	281	260	247	225	203	178	152
130	220	217	215	212	203	190	176	160	146	129
135	186	185	180	174	171	160	151	138	131	120
140	162	157	155	155	153	145	134	124	114	92
145	149	147	142	135	124	112	101	91	76	64
150	87	86	85	84	81	76	69	62	57	52
155	64	64	63	61	58	55	52	48	44	39
160	48	48	47	45	43	41	38	35	32	28
165	31	31	30	29	28	26	24	22	19	16
170	13	13	13	13	13	12	12	12	11	10
175	8	8	8	8	8	8	8	8	8	8
180	0	0	0	0	0	0	0	0	0	0

Vert. 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	573	573	573	573	573	573	573	573	573	573
5	673	661	648	635	621	607	592	578	563	555
10	754	737	719	692	664	636	607	578	549	534
15	821	794	765	734	701	657	612	566	521	500
20	835	822	808	767	727	689	625	558	491	462
25	814	788	766	747	710	674	624	543	463	424
30	797	745	706	698	691	654	618	541	467	402
35	775	718	683	653	633	599	555	501	445	362
40	771	707	664	620	602	591	549	485	404	317
45	709	687	651	621	597	558	505	445	377	279
50	673	670	646	626	546	490	449	403	331	239
55	639	599	579	587	516	481	435	364	289	201
60	615	560	509	477	476	455	385	324	239	167

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L12132801.IES

CANDELA TABULATION - (Cont.)

65	603	534	479	428	394	372	339	273	200	138
70	626	546	469	405	346	300	282	223	155	111
75	610	530	449	373	309	258	215	181	116	89
80	572	501	436	361	297	229	177	119	82	65
85	546	475	396	327	265	199	131	81	57	48
90	486	422	350	290	225	177	106	65	46	39
95	469	390	320	256	196	137	88	56	41	34
100	393	337	280	214	168	114	77	50	35	29
105	338	275	234	183	130	91	62	43	30	26
110	270	229	181	141	105	75	51	36	26	24
115	220	188	148	112	84	61	42	30	23	21
120	173	140	114	91	71	51	35	24	20	18
125	135	113	97	81	60	43	28	20	18	17
130	115	104	85	66	46	33	23	17	15	15
135	100	85	62	50	38	27	19	14	13	13
140	74	62	50	41	31	22	15	12	12	12
145	57	49	41	33	25	18	13	11	11	11
150	46	39	32	25	18	14	10	10	10	10
155	34	29	23	17	14	11	9	9	9	9
160	24	19	15	13	11	9	9	9	9	9
165	14	12	11	10	8	8	8	8	9	9
170	10	9	8	8	8	8	8	9	9	9
175	8	8	8	8	8	8	9	9	9	9
180	0	0	0	0	0	0	0	0	0	0

Vert. 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	573	573	573	573	573	573	573	573	573	573
5	548	540	533	526	519	513	508	502	498	494
10	519	505	491	478	465	444	425	407	391	376
15	481	461	444	409	378	349	322	298	278	259
20	435	410	368	330	292	263	235	208	185	182
25	388	346	301	259	228	197	178	175	172	169
30	340	288	238	208	178	172	172	170	168	170
35	287	233	195	172	167	174	169	164	158	150
40	243	186	166	155	163	162	153	145	137	134
45	206	156	144	145	150	142	134	127	125	123
50	175	138	129	131	129	122	113	111	108	99
55	147	122	116	114	109	101	95	93	82	73
60	125	106	100	95	90	82	76	68	59	50
65	107	90	88	80	70	63	57	48	42	38
70	89	74	69	62	54	47	40	35	30	27
75	69	59	52	45	39	34	29	24	21	18
80	53	45	38	32	28	24	20	17	15	13
85	39	33	29	25	22	19	17	15	14	12
90	32	29	26	23	21	18	16	15	13	12
95	29	27	24	21	19	17	15	14	13	12
100	27	24	22	20	18	16	15	13	13	12
105	24	22	20	18	16	15	14	13	12	12
110	22	20	18	17	15	14	13	12	12	12
115	19	18	17	15	14	13	13	12	12	12
120	17	16	15	14	13	13	12	12	12	11
125	16	15	14	13	12	12	12	11	11	11
130	14	14	13	12	12	12	11	11	11	11
135	13	12	12	12	11	11	11	11	11	11

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

140	12	12	11	11	11	11	11	11	11	11
145	11	11	11	11	11	10	10	10	10	11
150	10	10	10	10	10	10	10	10	10	11
155	10	10	10	10	10	10	10	10	10	11
160	9	9	9	10	10	10	10	10	10	10
165	9	9	9	9	10	10	10	10	10	10
170	9	9	9	9	9	9	9	10	10	10
175	9	9	9	9	9	9	9	9	9	9
180	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0	573	573	573	573	573	573	573
5	490	488	485	484	483	483	484
10	364	353	344	338	334	332	332
15	241	226	213	203	195	191	190
20	179	176	173	171	170	170	170
25	170	171	172	173	175	177	180
30	168	162	158	154	152	151	152
35	143	145	147	147	148	151	155
40	136	138	135	130	127	127	130
45	117	111	103	98	91	88	88
50	89	78	70	65	60	57	57
55	60	55	48	47	47	47	47
60	46	43	40	39	39	39	39
65	35	33	30	30	29	29	31
70	25	23	22	21	20	21	21
75	17	15	13	13	13	12	12
80	12	11	10	10	10	10	10
85	11	11	10	10	10	10	10
90	0	11	11	11	11	11	10
95	0	11	11	11	11	11	10
100	0	11	11	11	11	11	10
105	0	11	11	11	11	11	11
110	0	11	11	11	11	11	11
115	0	0	0	11	11	11	11
120	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L12132801.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	211.87	N.A.	6.50
0-30	442.26	N.A.	13.60
0-40	727.79	N.A.	22.40
0-60	1421.52	N.A.	43.70
0-80	2148.09	N.A.	66.10
0-90	2470.75	N.A.	76.00
10-90	2414.85	N.A.	74.30
20-40	515.92	N.A.	15.90
20-50	851.30	N.A.	26.20
40-70	1063.66	N.A.	32.70
60-80	726.57	N.A.	22.40
70-80	356.64	N.A.	11.00
80-90	322.66	N.A.	9.90
90-110	483.90	N.A.	14.90
90-120	619.04	N.A.	19.00
90-130	696.06	N.A.	21.40
90-150	765.30	N.A.	23.50
90-180	779.84	N.A.	24.00
110-180	295.94	N.A.	9.10
0-180	3250.59	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	55.91
10-20	155.96
20-30	230.39
30-40	285.53
40-50	335.38
50-60	358.34
60-70	369.93
70-80	356.64
80-90	322.66
90-100	274.26
100-110	209.64
110-120	135.14
120-130	77.02
130-140	44.41
140-150	24.83
150-160	10.34
160-170	3.58
170-180	0.62

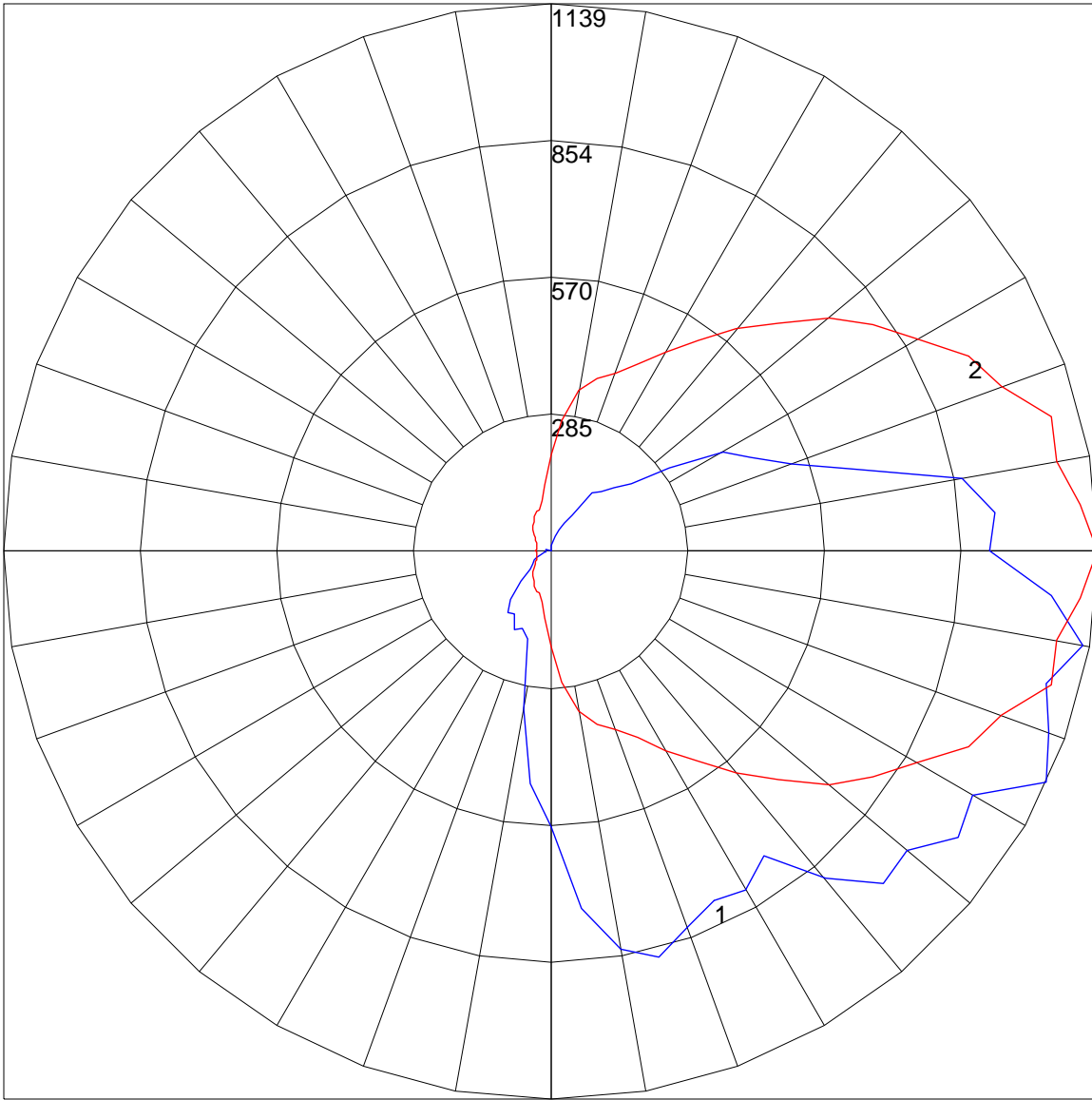
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L12132801.IES

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	113	113	113	113	113	108	108	108	108	98	98	98	89	89	89	80	80	80	76
1	99	92	87	81	81	93	88	82	78	79	75	71	71	67	64	63	61	58	54
2	88	78	70	63	63	83	74	67	60	67	60	55	60	55	50	53	49	46	42
3	80	67	58	51	51	75	64	55	48	57	50	45	51	46	41	46	41	37	34
4	72	59	49	42	42	68	56	47	40	50	43	37	45	39	34	40	35	31	28
5	66	52	42	35	35	62	50	41	34	45	37	31	40	34	29	36	31	26	23
6	61	47	37	30	30	57	44	36	29	40	33	27	36	30	25	32	27	23	20
7	56	42	33	26	26	53	40	31	25	36	29	24	33	26	22	29	24	20	18
8	52	38	29	23	23	49	36	28	22	33	26	21	30	24	19	27	22	18	15
9	49	35	26	21	21	46	33	25	20	30	23	19	28	22	17	25	20	16	14
10	45	32	24	18	18	43	31	23	18	28	21	17	25	20	16	23	18	14	12

POLAR GRAPH



Maximum Candela = 1139 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.)