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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L061802503 **Issue Date: 6/11/2018**

Report Prepared For: eLuminaire LLC
180 E Selandia Lane Carson, CA 90746

Model Number: eLPLS1-DP16030K8-XX

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.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 5/23/18

Date of Tests: 5/30/18 - 6/11/18

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	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
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.

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Test Summary	
Manufacturer:	eLuminaire LLC
Model Number:	eLPLS1-DP16030K8-XX
Driver Model Number:	MOONS' MU200H105AQ_0-10V
Total Lumens:	13166.86
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	1.00
Input Power (W):	118.54
Input Power Factor:	0.99
Current ATHD @ 120V(%):	7%
Current ATHD @ 277V(%):	11% (0.46A, 115.38W, 0.91PF)
Efficacy:	111
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	2959
Chromaticity Coordinate x:	0.4407
Chromaticity Coordinate y:	0.4068
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:50
Total Operating Time (Hours):	1:10

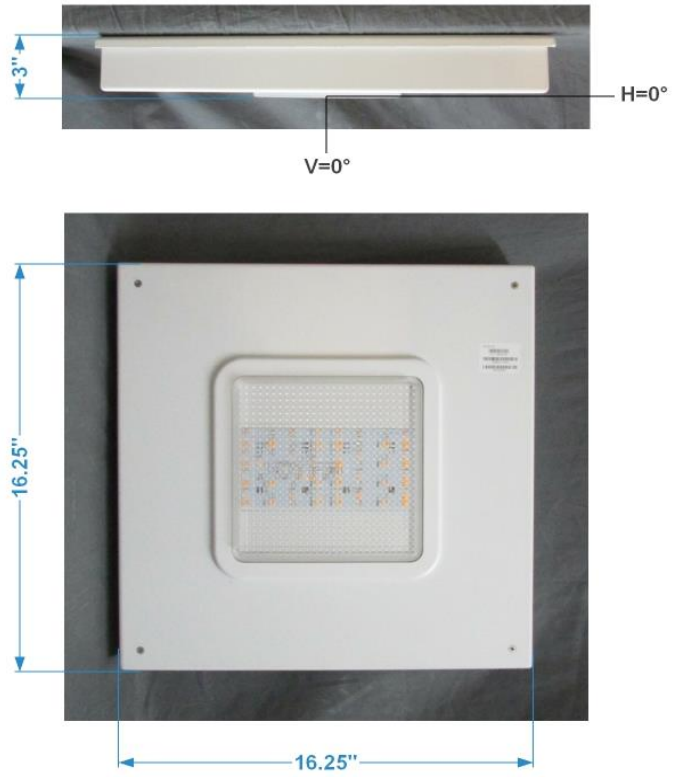


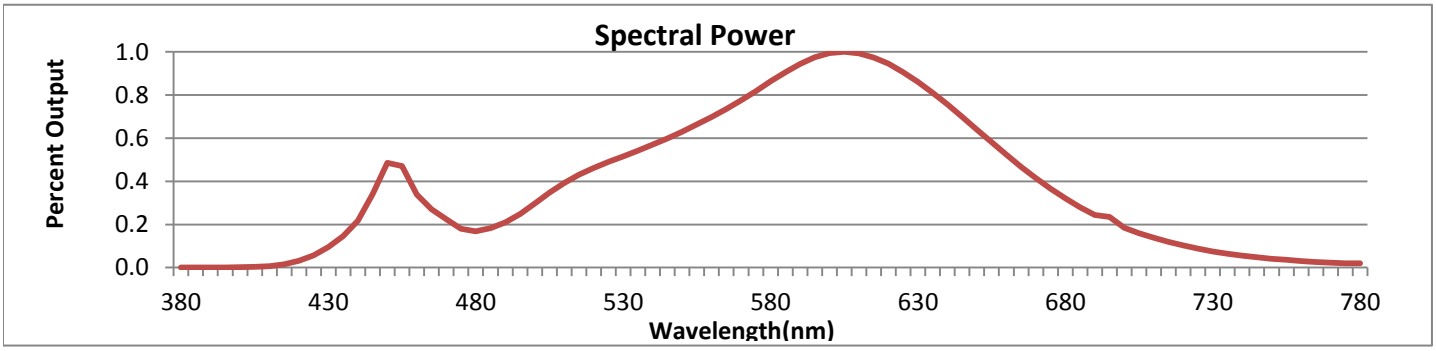
FIG. 1 LUMINAIRE

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

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

Report No: L061802503

NVLAP TESTING
NVLAP LAB CODE 200927-0



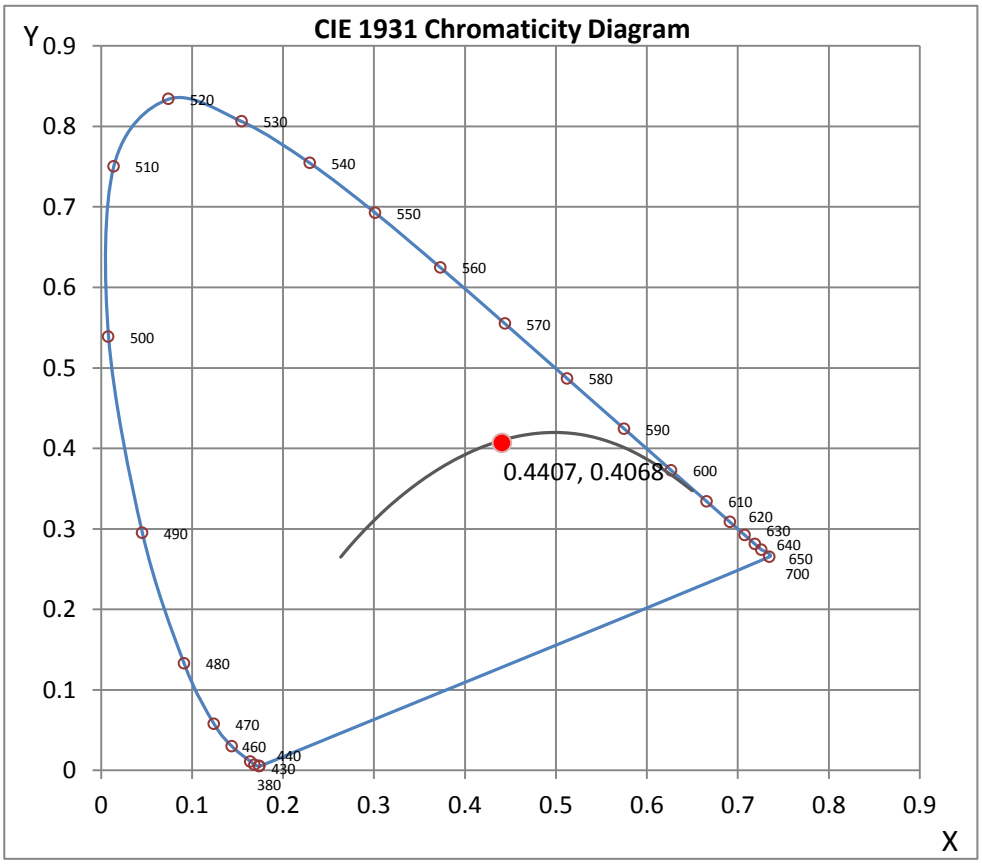
Wavelength	W/m²nm	440	0.2174	510	0.3921	580	0.8646	650	0.6397	720	0.1024
380	0.0009	450	0.4855	520	0.4625	590	0.9445	660	0.5237	730	0.0751
390	0.0011	460	0.3395	530	0.5154	600	0.9940	670	0.4138	740	0.0553
400	0.0017	470	0.2245	540	0.5697	610	0.9935	680	0.3206	750	0.0411
410	0.0068	480	0.1687	550	0.6300	620	0.9460	690	0.2439	760	0.0305
420	0.0315	490	0.2092	560	0.6974	630	0.8611	700	0.1843	770	0.0226
430	0.0948	500	0.2974	570	0.7752	640	0.7569	710	0.1383	780	0.0195

CRI & CCT

x	0.4407
y	0.4068
u'	0.2518
v'	0.5230
CRI	83.20
CCT	2959
Duv	0.00058

R Values

R1	81.61
R2	90.24
R3	96.93
R4	81.57
R5	81.12
R6	87.49
R7	84.68
R8	62.19
R9	13.85
R10	77.15
R11	80.38
R12	69.12
R13	83.50
R14	98.25



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

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

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 : Joseph Shin

Test Report Released by:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 10*

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

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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L061802503.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L061802503
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 6/11/2018
[MANUFAC] eLuminaire LLC
[LUMCAT] eLPLS1-DP16030K8-XX
[LUMINAIRE] Canopy / Petroleum Light
[BALLASTCAT] MOONS' MU200H105AQ_0-10V
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 118.54W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	13167
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	111
Total Luminaire Watts	118.54
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.28
Spacing Criterion (90-270)	1.32
Spacing Criterion (Diagonal)	1.38
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.56 ft
Luminous Width (90-270)	0.56 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	156010	156980	162460
55	124115	112755	116821
65	98424	92987	84630
75	74196	97514	62934
85	119216	144397	118822

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L061802503.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	4931	4931	4931	4931	4931	4931	4931	4931	4931	4931
5	5014	5012	5015	5013	5010	5006	5002	4997	4987	4976
10	5155	5156	5156	5152	5141	5129	5119	5108	5092	5072
15	5229	5232	5242	5252	5261	5268	5265	5247	5211	5167
20	4874	4874	4898	4920	4960	5011	5054	5100	5141	5157
25	4518	4526	4531	4547	4556	4569	4597	4639	4720	4813
30	4271	4279	4295	4296	4283	4281	4294	4327	4359	4405
35	3983	3984	3989	3995	4014	4033	4045	4052	4051	4048
40	3609	3612	3611	3615	3628	3648	3674	3689	3708	3711
45	3217	3219	3216	3208	3201	3203	3199	3208	3222	3237
50	2697	2696	2693	2683	2655	2628	2606	2592	2588	2588
55	2076	2070	2056	2055	2057	2044	1999	1934	1898	1886
60	1628	1633	1644	1625	1596	1587	1569	1516	1474	1439
65	1213	1210	1229	1247	1241	1215	1208	1213	1184	1146
70	825	831	857	895	915	916	927	928	923	921
75	560	563	577	620	692	714	705	713	722	736
80	478	468	446	450	496	537	550	549	574	573
85	303	298	298	314	341	358	372	387	386	367
90	141	145	149	156	161	161	165	171	174	176
95	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**								
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**
0	4931	4931	4931	4931	4931	4931	4931	4931	4931
5	4965	4951	4942	4934	4927	4923	4920	4919	4918
10	5046	5018	4989	4964	4936	4910	4895	4886	4884
15	5110	5052	5004	4951	4910	4867	4838	4823	4816
20	5129	5069	4989	4918	4847	4796	4761	4742	4738
25	4896	4931	4919	4838	4742	4644	4587	4568	4568
30	4454	4521	4594	4622	4573	4454	4374	4351	4355
35	4057	4102	4154	4215	4247	4206	4131	4106	4112
40	3712	3716	3740	3780	3814	3813	3797	3776	3790
45	3255	3261	3265	3276	3288	3290	3307	3350	3350
50	2593	2606	2616	2626	2645	2652	2675	2715	2726
55	1876	1874	1913	1962	1954	1917	1915	1939	1954
60	1417	1437	1467	1471	1443	1445	1466	1466	1460

CANDELA TABULATION - (Cont.)

65	1142	1143	1106	1088	1103	1094	1057	1039	1043
70	903	874	857	825	811	786	733	703	697
75	719	699	682	683	662	565	500	479	475
80	570	550	549	535	479	420	402	420	432
85	388	394	386	375	356	327	301	298	302
90	183	188	187	184	180	172	157	145	139
95	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L061802503.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	1906.31	N.A.	14.50
0-30	4063.99	N.A.	30.90
0-40	6611.7	N.A.	50.20
0-60	10896.2	N.A.	82.80
0-80	12750.18	N.A.	96.80
0-90	13121.31	N.A.	99.70
10-90	12644.71	N.A.	96.00
20-40	4705.4	N.A.	35.70
20-50	7184.18	N.A.	54.60
40-70	5441.85	N.A.	41.30
60-80	1853.99	N.A.	14.10
70-80	696.63	N.A.	5.30
80-90	371.13	N.A.	2.80
90-110	45.54	N.A.	0.30
90-120	45.54	N.A.	0.30
90-130	45.54	N.A.	0.30
90-150	45.54	N.A.	0.30
90-180	45.54	N.A.	0.30
110-180	0.00	N.A.	0.00
0-180	13166.86	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	476.60
10-20	1429.7
20-30	2157.68
30-40	2547.72
40-50	2478.78
50-60	1805.71
60-70	1157.35
70-80	696.63
80-90	371.13
90-100	45.54
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 : L061802503.IES

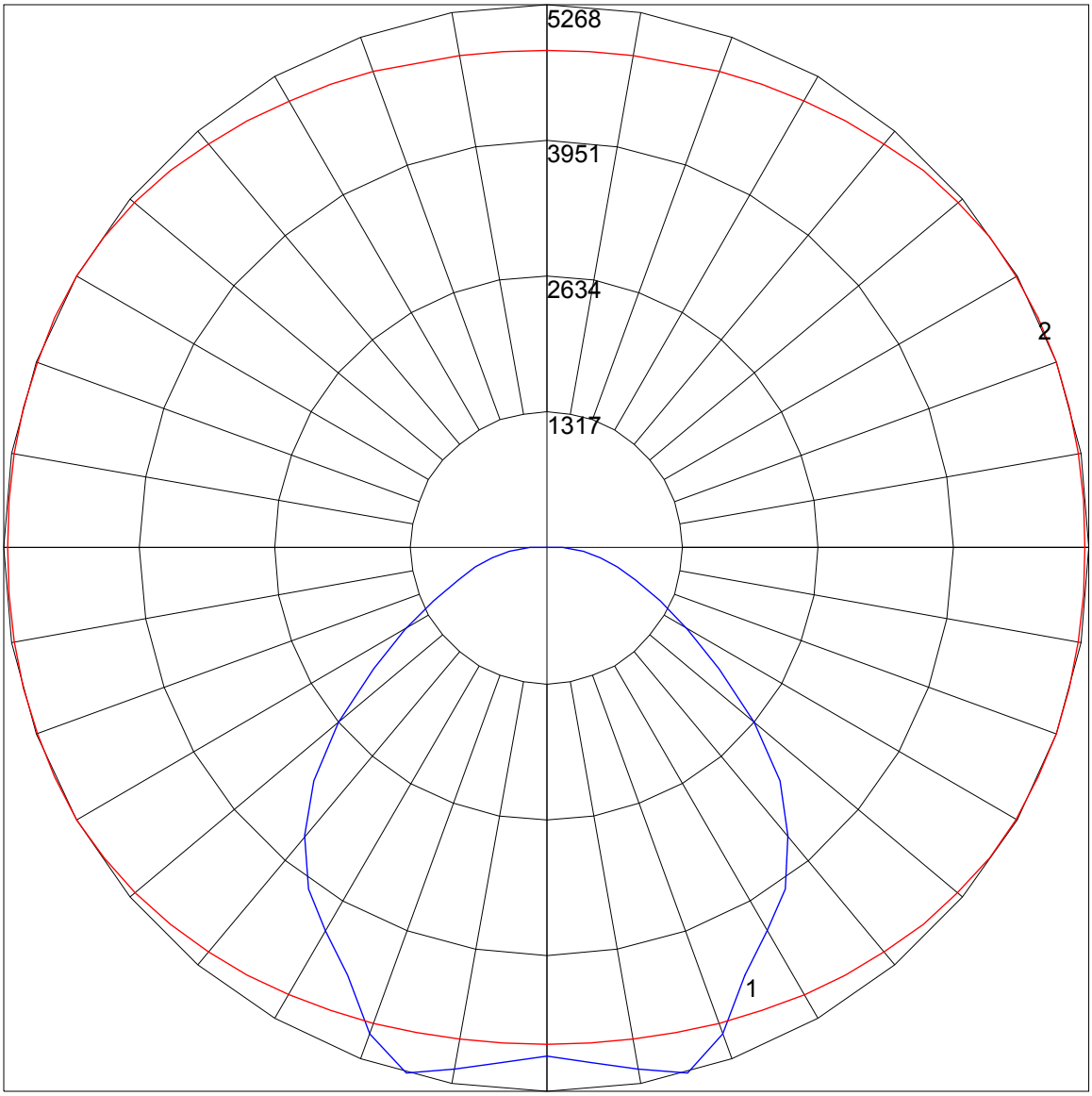
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	77	74	71
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	64	57	69	62	57	67	61	56	64	59	55	53
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	34	33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L061802503.IES

POLAR GRAPH



Maximum Candela = 5268 Located At Horizontal Angle = 25, Vertical Angle = 15
1 - Vertical Plane Through Horizontal Angles (25 - 205) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (15) (Through Max. Cd.)