



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

Report No: L041903901



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Issue Date: 4/30/2019

Report Prepared For: Cerno LLC
1751 McGaw Ave, Irvine, CA, 92614

Model Number: 06-910-A-27P1

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: 4/25/19

Date of Tests: 4/26/19 - 4/30/19

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:	Cerno LLC
Model Number:	06-910-A-27P1
Driver Model Number:	EFORE RCL020-0350A

Test Summary

Total Lumens:	1571.92
Efficacy:	89.26
Color Redering Index:	93.3
Correlated Color Temperature:	2739
Input Voltage (VAC/60Hz):	120.02
Input Current (Amp):	0.1484
Input Power (W):	17.61
Input Power Factor:	0.9890
Current ATHD (%):	11.4%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:40

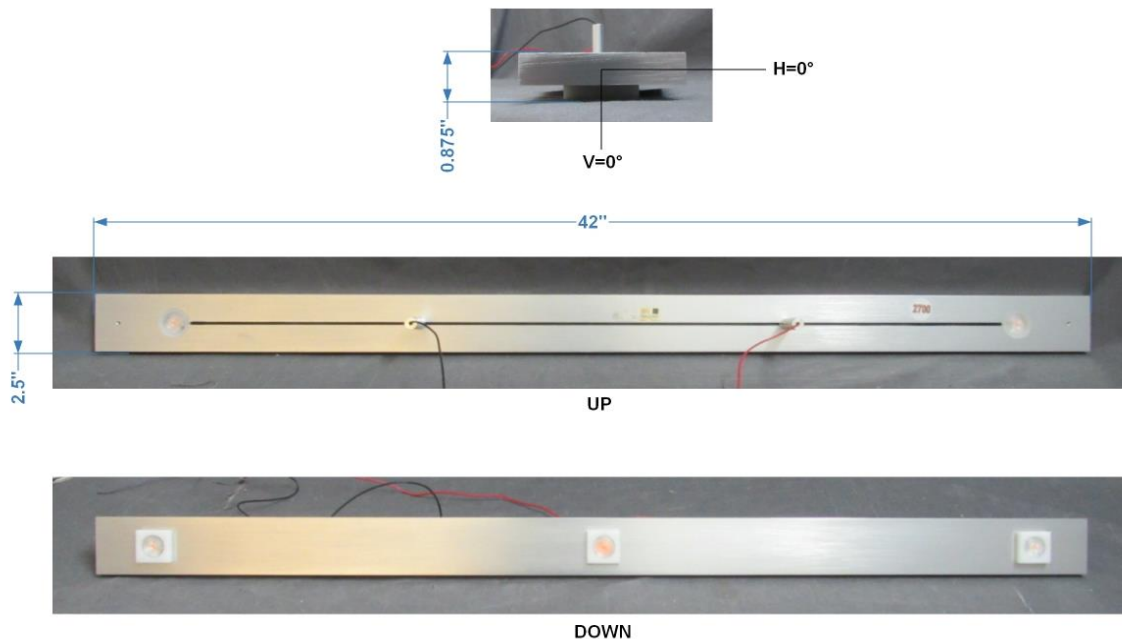
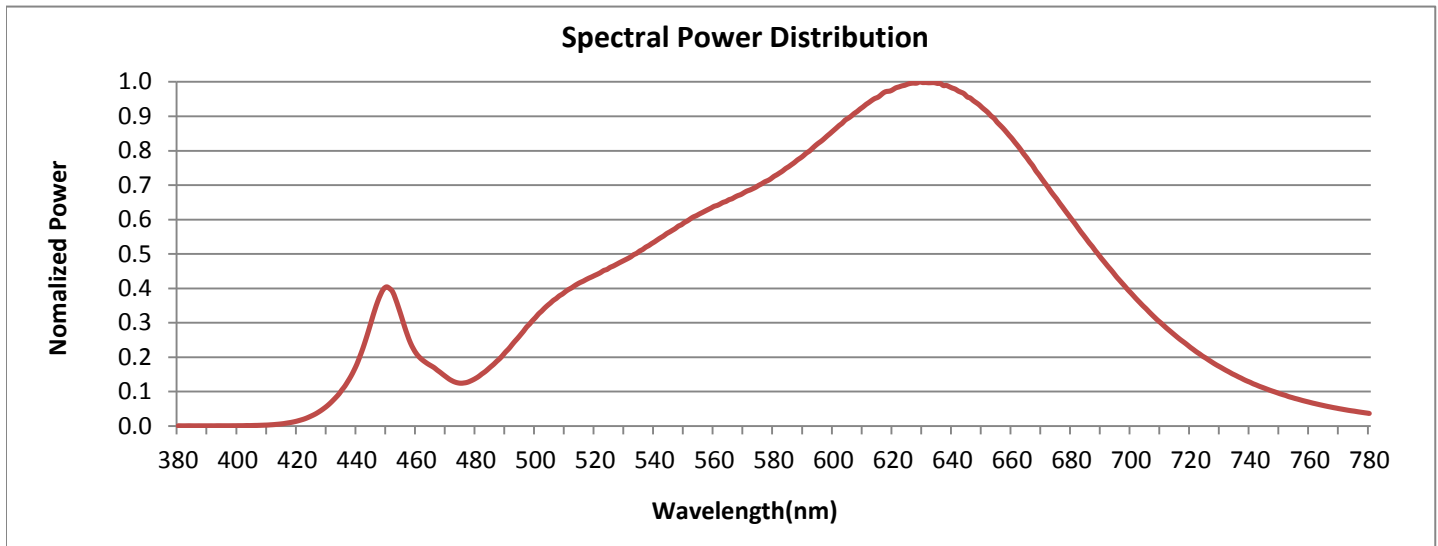


FIG. 1 LUMINAIRE

Colorimetry Test Results

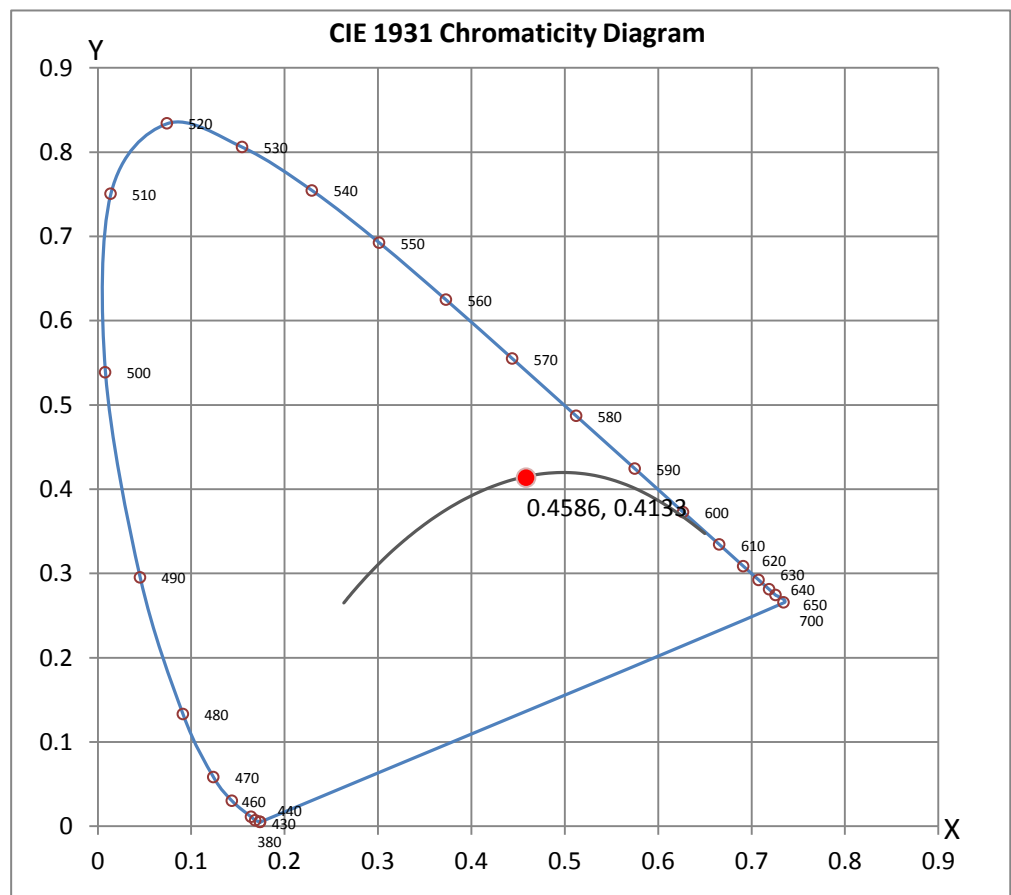


CRI & CCT

x	0.4586
y	0.4133
u'	0.2605
v'	0.5282
CRI	93.30
CCT	2739
Duv	0.00111

R Values

R1	93.64
R2	94.99
R3	94.92
R4	94.73
R5	93.15
R6	93.96
R7	94.74
R8	86.62
R9	68.95
R10	87.63
R11	95.49
R12	82.01
R13	93.71
R14	96.26
R15	90.70





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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: 10*



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Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L041903901.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L041903901
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 4/30/2019
[MANUFAC] Cerno LLC
[LUMCAT] 06-910-A-27P1
[LUMINAIRE] Brevis 42 Pendant, 2700K
[BALLASTCAT] EFORE RCL020-0350A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120.02VAC, 17.61W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1572
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	89
Total Luminaire Watts	17.61
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	0.56
Spacing Criterion (90-270)	0.58
Spacing Criterion (Diagonal)	0.60
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.07 ft
Luminous Width (90-270)	3.17 ft
Luminous Height	0.07 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3255	3919	6605
55	1775	2204	4259
65	1240	1619	3832
75	989	1367	4671
85	313	540	3552

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041903901.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	1738	1738	1738	1738	1738	1738	1738	1738	1738	1738
1.0	1739	1739	1739	1739	1739	1739	1739	1739	1739	1739
3.0	1711	1711	1711	1711	1711	1711	1711	1711	1711	1711
5.0	1645	1645	1645	1645	1645	1645	1645	1645	1645	1645
7.0	1551	1551	1551	1551	1551	1551	1551	1551	1552	1552
9.0	1432	1433	1433	1434	1434	1435	1436	1437	1437	1437
11.0	1300	1300	1301	1302	1304	1305	1307	1308	1308	1307
13.0	1157	1157	1158	1160	1162	1165	1167	1168	1168	1167
15.0	1012	1012	1014	1016	1018	1022	1024	1026	1026	1026
17.0	872	872	873	876	879	882	885	887	888	889
19.5	715	715	717	719	722	725	728	730	732	734
22.5	560	560	561	563	565	568	570	572	574	576
25.5	437	437	438	439	441	443	445	447	448	450
29.0	326	327	328	329	330	332	333	335	336	337
33.0	235	235	235	236	237	238	240	241	242	243
37.5	163	163	163	164	165	166	167	168	169	169
42.5	111	111	111	112	113	113	114	115	115	115
47.5	79	79	79	80	80	81	81	82	82	82
55.0	51	51	51	51	52	52	52	53	53	53
65.0	34	34	34	35	35	35	35	35	36	36
75.0	25	25	26	26	26	26	27	27	27	27
85.0	7	7	8	8	8	8	8	8	8	9
90.0	3	3	3	3	3	3	3	4	4	4
95.0	3	3	3	3	3	3	3	3	3	3
100.0	11	11	11	11	11	11	11	11	11	11
105.0	17	17	17	17	17	17	17	17	17	17
110.0	21	21	21	21	21	21	21	21	21	21
115.0	23	23	23	24	24	24	24	24	24	24
120.0	27	27	27	27	27	27	27	27	27	27
125.0	32	32	32	32	32	32	32	32	32	33
130.0	40	40	40	40	40	40	40	41	41	41
135.0	52	52	52	53	53	53	53	53	54	54
140.0	73	73	73	73	73	74	74	75	75	75
145.0	107	106	107	107	107	108	109	109	110	110
150.0	165	165	165	166	166	168	168	169	170	171
155.0	264	264	264	265	266	267	269	270	271	273
160.0	417	417	418	419	420	421	423	425	427	429
165.0	625	625	626	627	629	631	633	635	636	637
170.0	855	855	857	859	861	863	864	865	865	865
175.0	1050	1051	1050	1050	1050	1049	1049	1049	1049	1049
180.0	1116	1116	1116	1116	1116	1116	1116	1116	1116	1116

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>
0.0	1738	1738	1738	1738	1738	1738	1738	1738	1738
1.0	1739	1739	1739	1739	1739	1739	1739	1739	1739
3.0	1711	1711	1711	1711	1711	1711	1711	1711	1711
5.0	1645	1646	1646	1646	1646	1646	1646	1646	1646
7.0	1551	1551	1551	1551	1551	1551	1551	1551	1551
9.0	1436	1436	1435	1435	1435	1435	1436	1436	1437
11.0	1307	1306	1306	1306	1307	1308	1309	1310	1311
13.0	1167	1167	1167	1168	1170	1171	1173	1174	1174
15.0	1026	1027	1028	1029	1031	1032	1034	1035	1036

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CANDELA TABULATION - (Cont.)

17.0	890	891	892	894	895	897	899	901	901
19.5	735	736	737	739	740	742	743	745	745
22.5	577	578	579	580	582	583	584	585	586
25.5	451	452	452	454	454	455	456	457	457
29.0	337	338	338	339	340	340	341	341	341
33.0	243	243	244	244	244	245	245	245	245
37.5	169	169	170	170	170	170	170	170	170
42.5	115	115	116	116	116	116	115	115	115
47.5	82	82	82	82	82	82	82	82	82
55.0	53	53	53	53	53	53	53	53	52
65.0	36	36	36	36	36	35	35	35	35
75.0	27	27	27	27	27	27	27	27	27
85.0	9	9	9	9	9	9	9	8	8
90.0	4	4	4	3	3	3	3	3	2
95.0	3	3	3	3	3	3	3	3	2
100.0	11	11	11	11	11	11	11	11	7
105.0	17	17	17	17	18	18	18	18	18
110.0	21	22	22	22	22	22	22	22	22
115.0	24	24	24	24	24	24	24	24	24
120.0	27	27	27	28	27	27	28	27	27
125.0	33	33	33	33	33	33	33	33	33
130.0	41	41	41	41	41	41	41	41	41
135.0	54	54	54	54	54	54	54	54	54
140.0	76	76	76	76	76	76	76	76	76
145.0	111	111	111	112	112	112	112	112	113
150.0	172	172	173	174	174	175	175	176	176
155.0	274	275	276	277	278	279	280	280	281
160.0	430	431	433	434	435	436	437	438	438
165.0	638	639	640	641	643	644	645	645	645
170.0	864	864	865	865	865	865	866	866	866
175.0	1050	1049	1049	1049	1049	1049	1049	1048	1048
180.0	1116	1116	1116	1116	1116	1116	1116	1116	1116

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	416.76	N.A.	26.50
0-30	630.90	N.A.	40.10
0-40	754.20	N.A.	48.00
0-60	884.58	N.A.	56.30
0-80	957.99	N.A.	60.90
0-90	980.05	N.A.	62.30
10-90	857.29	N.A.	54.50
20-40	337.44	N.A.	21.50
20-50	424.98	N.A.	27.00
40-70	171.96	N.A.	10.90
60-80	73.41	N.A.	4.70
70-80	31.83	N.A.	2.00
80-90	22.05	N.A.	1.40
90-110	23.12	N.A.	1.50
90-120	46.98	N.A.	3.00
90-130	76.67	N.A.	4.90
90-150	191.52	N.A.	12.20
90-180	591.87	N.A.	37.70
110-180	568.75	N.A.	36.20
0-180	1571.92	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	122.76
10-20	294.01
20-30	214.14
30-40	123.29
40-50	87.55
50-60	42.84
60-70	41.58
70-80	31.83
80-90	22.05
90-100	5.49
100-110	17.64
110-120	23.86
120-130	29.69
130-140	42.77
140-150	72.08
150-160	129.46
160-170	176.60
170-180	94.29

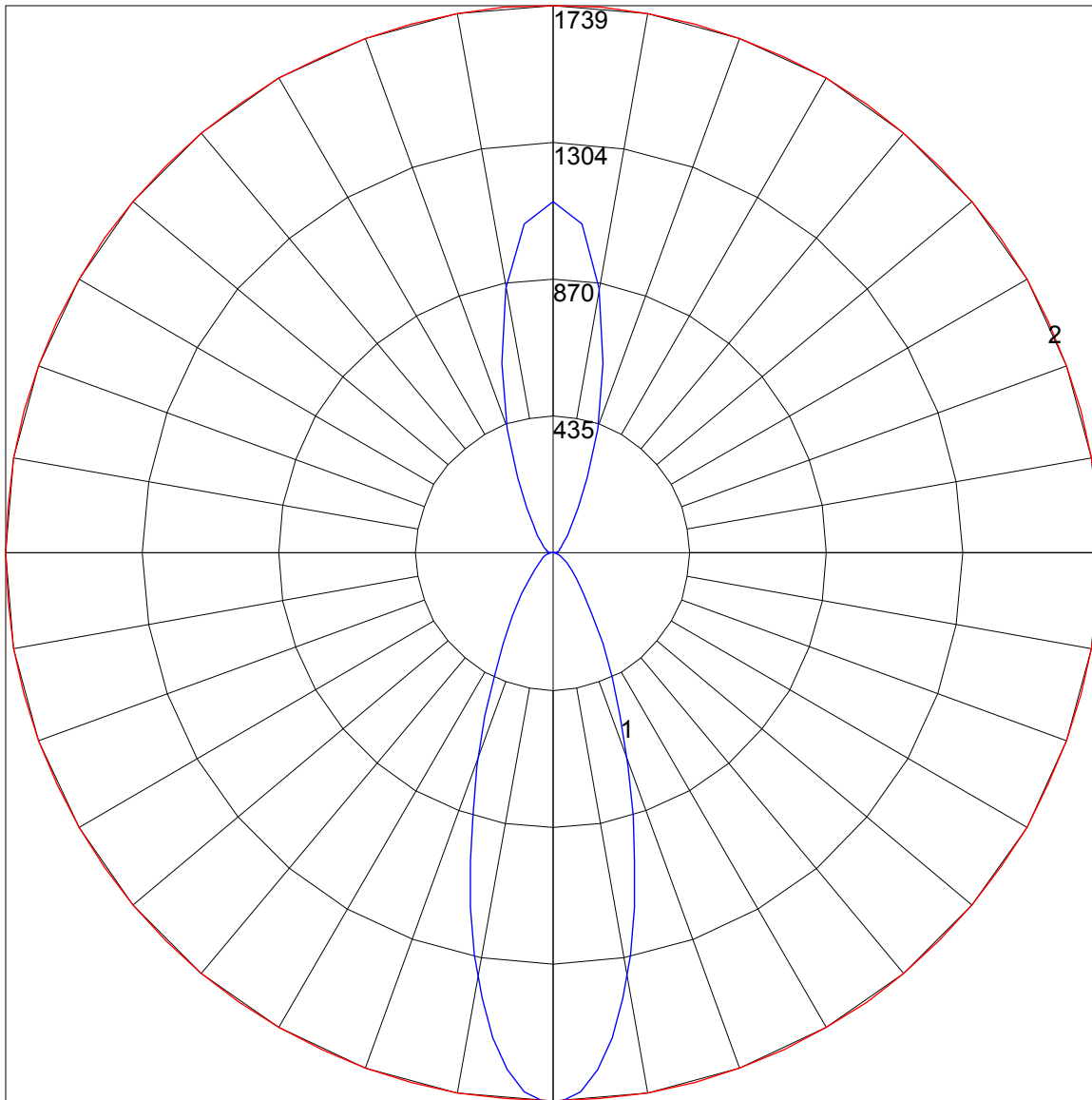
IES INDOOR REPORT
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67	62
1	102	98	95	92	96	93	90	87	82	79	78	71	70	69	62	61	60	56
2	95	89	84	79	89	84	79	76	74	71	68	66	63	61	58	56	55	51
3	89	81	75	70	83	76	71	67	68	64	61	61	58	55	54	52	50	47
4	83	74	67	62	78	70	64	60	63	59	55	57	53	50	51	48	46	43
5	78	68	61	56	73	65	59	54	59	54	50	53	49	46	48	45	43	40
6	73	63	56	51	69	60	54	49	55	50	46	50	46	43	45	42	40	37
7	69	58	52	47	65	56	50	45	51	46	43	47	43	40	43	40	37	35
8	65	55	48	43	62	52	46	42	48	43	40	44	40	37	40	37	35	33
9	62	51	45	40	58	49	43	39	45	41	37	42	38	35	38	35	33	31
10	58	48	42	38	56	46	41	37	43	38	35	40	36	33	37	34	31	30

POLAR GRAPH



Maximum Candela = 1739 Located At Horizontal Angle = 0, Vertical Angle = 1
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (1) (Through Max. Cd.)