



8165 E Kaiser Blvd. Anaheim, CA 92808
p. 714.282.2270
f. 714.676.5558

Test #: L041412309

Date: 5/5/2014



NVLAP LAB CODE 200927-0

Test Report: L041412309

Model Number: P46-LED4LO-04-SAL-TMW-D3-SC-UNV

Report Prepared For: Prudential Lighting
1737 East 22nd Street

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 P46-LED4LO-04-SAL-TMW-D3-SC-UNV . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 4/24/14

Date of Tests: 5/1/14 - 5/1/14

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	01/04/15
Xitron Power Analysis System	2503AH	MT-EL01	01/09/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/15
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/15
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:	Prudential Lighting
Model Number:	P46-LED4LO-04-SAL-TMW-D3-SC-UNV
LAMPCAT:	N/A
Driver Model Number:	OSRAM OPTOTRONIC OT50W/PRG1400C/UNV/DIM/L
Total Lumens:	3903.13
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.32
Input Power (W):	38.33
Input Power Factor:	0.99
Total Harmonic Distortion @ 120V(%):	9%
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	102
Color Rendering Index (CRI):	84
Correlated Color Temperature (K):	3999
Chromaticity Coordinate x:	0.3797
Chromaticity Coordinate y:	0.3738
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	3:10
Off State Power(W):	0.00

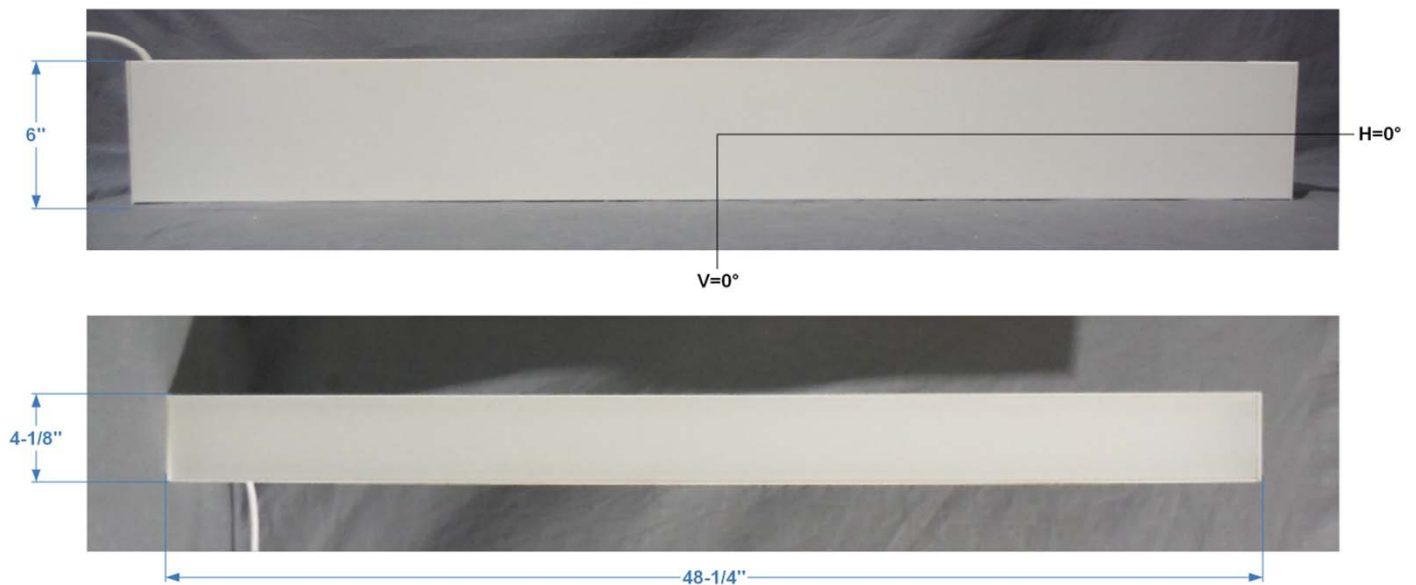
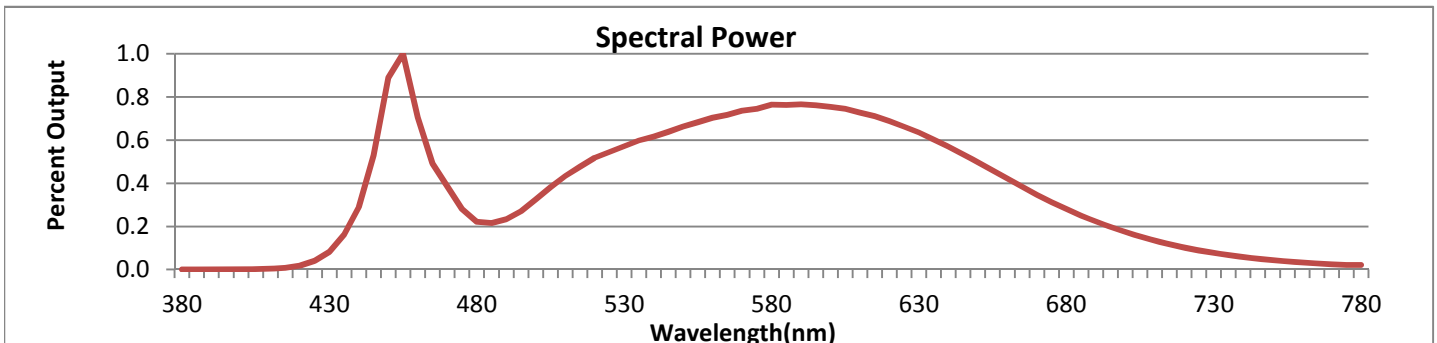


FIG.1 LUMINAIRE



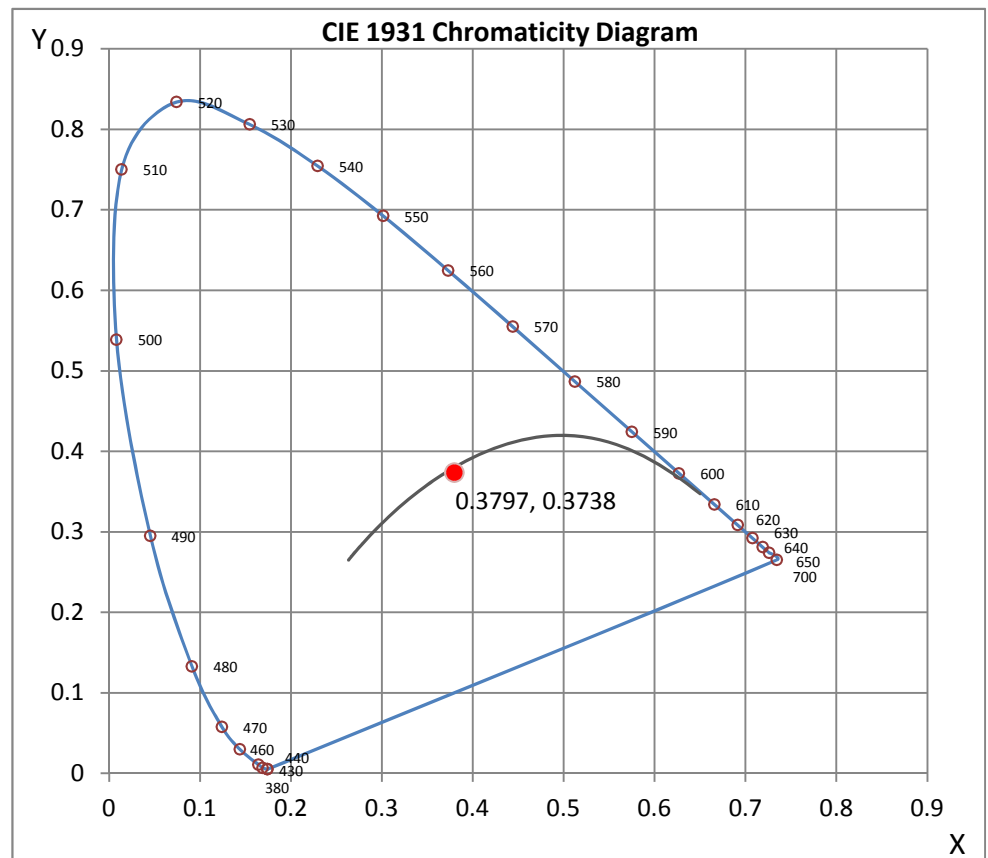
Wavelength	W/m ² nm	440	0.0127	510	0.0189	580	0.0334	650	0.0217	720	0.0044
380	0.0000	450	0.0389	520	0.0227	590	0.0335	660	0.0184	730	0.0034
390	0.0000	460	0.0308	530	0.0250	600	0.0330	670	0.0152	740	0.0025
400	0.0001	470	0.0169	540	0.0270	610	0.0318	680	0.0123	750	0.0019
410	0.0002	480	0.0097	550	0.0290	620	0.0301	690	0.0097	760	0.0014
420	0.0008	490	0.0102	560	0.0308	630	0.0278	700	0.0076	770	0.0011
430	0.0036	500	0.0142	570	0.0322	640	0.0249	710	0.0059	780	0.0009

CRI & CCT

x	0.3797
y	0.3738
u'	0.2258
v'	0.5002
CRI	84.20
CCT	3999
Duv	-0.00117

R Values

R1	83.18
R2	89.70
R3	92.86
R4	82.14
R5	81.80
R6	83.56
R7	88.72
R8	71.88
R9	28.24
R10	73.82
R11	79.47
R12	56.31
R13	84.78
R14	95.67





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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 : Wilson Khounlavong

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: 11



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Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L041412309.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L041412309
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 5/5/2014
[MANUFAC] PRUDENTIAL LIGHTING
[LUMCAT] P46-LED4LO-04-SAL-TMW-D3-SC-UNV
[LUMINAIRE] 48-1/4"L X 4-1/8"W X 6"H. LED LUMINAIRE.
[MORE] DOWNLIGHT DIFFUSED LENS.UPLIGHT NO LENS.
[BALLASTCAT] OSRAM OPTOTRONIC OT50W/PRG1400C/UNV/DIM/L
[BALLAST] INPUT: 120-277VAC, 0.52-0.24A, 50/60HZ. OUTPUT: 10-55VDC, 0.4-1.4A.
[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, 38.33W
[_TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3903
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	102
Total Luminaire Watts	38.33
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)	4.00 ft
Luminous Width (90-270)	0.34 ft
Luminous Height	0.50 ft

IES INDOOR REPORT
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LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	4143	2099	1708
55	3611	1529	1203
65	3041	1050	805
75	2215	585	441
85	1169	195	148

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041412309.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	741.50	741.50	741.50	741.50	741.50	741.50	741.50	741.50	741.50	741.50
5	734.27	734.16	734.06	734.14	734.39	735.19	735.97	736.35	736.38	736.28
10	720.24	720.29	720.53	720.90	721.18	721.86	722.05	721.02	719.87	719.09
15	693.98	693.80	693.81	694.00	694.30	695.65	696.22	694.40	693.02	693.29
20	662.03	661.95	662.26	662.74	662.74	661.91	659.95	658.85	657.54	657.11
25	620.27	619.93	619.61	619.51	619.56	620.77	618.84	616.81	616.96	612.87
30	575.76	575.01	574.29	574.35	575.66	575.03	571.27	568.63	566.73	563.49
35	527.35	526.68	525.44	524.19	523.39	522.12	521.20	517.34	516.10	510.24
40	471.47	471.25	470.91	470.96	471.03	468.42	467.76	462.42	458.67	455.03
45	416.78	416.50	416.70	417.13	415.35	414.86	410.02	406.71	403.03	399.51
50	361.68	361.43	361.45	361.60	359.92	359.04	354.14	351.04	348.69	343.70
55	308.66	308.44	307.44	306.56	305.54	303.86	299.98	296.89	293.26	289.57
60	259.24	259.58	259.61	260.07	257.01	255.41	252.85	249.13	245.78	242.71
65	206.09	206.50	206.47	206.12	204.10	202.01	199.57	196.96	194.41	191.94
70	154.79	155.04	154.68	154.18	152.70	151.14	149.26	147.40	145.66	143.90
75	106.30	106.85	106.68	105.61	104.87	103.93	102.79	101.76	100.78	99.76
80	64.73	64.89	64.15	63.69	63.21	62.87	62.47	62.15	61.86	61.42
85	31.29	31.21	30.89	30.77	30.62	30.42	30.17	30.07	29.97	29.91
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	24.12	30.83	26.29	21.13	21.99	22.60	23.20	23.72	23.87	24.01
100	84.12	84.75	73.23	72.47	63.30	27.46	28.09	28.94	29.75	30.40
105	148.77	150.88	152.65	134.29	128.74	131.90	131.89	73.64	33.64	33.44
110	222.50	225.82	223.36	226.12	204.71	191.76	192.34	193.82	195.75	197.01
115	295.91	300.12	295.20	298.72	300.71	288.44	253.43	253.53	254.66	257.25
120	365.73	370.95	365.43	364.67	369.23	370.61	368.71	320.74	311.43	313.77
125	424.63	425.98	426.46	424.20	424.77	428.20	429.48	432.09	394.34	366.12
130	485.01	485.54	487.38	483.76	484.48	490.37	490.73	491.03	491.02	491.01
135	540.49	538.91	544.27	542.52	541.84	543.55	545.51	545.64	547.44	549.49
140	591.87	590.21	595.17	593.36	591.71	591.02	592.76	593.78	597.66	598.36
145	635.06	633.86	635.05	637.67	635.31	635.44	634.36	636.47	641.05	641.62
150	673.05	674.21	673.19	678.06	677.40	678.59	678.24	677.13	675.67	676.96
155	707.99	709.26	710.06	710.40	714.62	713.52	711.94	711.70	710.15	709.06
160	736.72	737.99	738.57	738.38	737.82	741.20	740.39	739.84	738.78	738.26
165	759.55	758.65	759.47	759.93	758.40	760.40	763.11	763.74	762.26	761.58
170	775.07	774.05	774.41	775.02	775.48	775.21	777.00	776.98	776.69	776.51
175	784.69	784.79	785.11	786.31	785.38	787.90	789.20	788.95	788.68	788.81
180	791.84	791.84	791.84	791.84	791.84	791.84	791.84	791.84	791.84	791.84

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	741.50	741.50	741.50	741.50	741.50	741.50	741.50	741.50	741.50
5	736.01	735.78	735.48	735.05	734.56	734.28	734.53	734.92	735.05
10	718.49	717.82	717.39	716.78	716.38	716.17	716.14	716.36	716.33
15	693.80	691.43	689.36	687.96	686.89	686.53	686.51	686.33	686.26
20	656.09	653.11	653.80	650.01	647.74	646.67	646.67	646.26	645.97
25	609.76	608.23	605.78	604.15	601.40	599.21	599.00	598.46	597.87
30	562.04	557.46	554.30	552.37	551.23	547.65	546.86	546.28	545.62
35	507.60	503.81	501.30	497.38	494.78	494.37	491.85	491.28	490.74
40	452.86	447.60	444.15	441.68	439.21	438.03	435.30	434.30	433.75
45	395.90	392.78	387.74	384.65	381.96	380.42	378.86	377.75	377.32
50	340.13	335.76	332.37	329.28	327.07	325.48	323.85	322.80	322.57
55	286.14	282.76	279.71	276.97	274.89	273.39	271.77	270.62	270.45
60	239.65	236.77	234.35	232.10	230.17	228.58	227.28	226.41	226.12

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

65	189.64	187.51	185.43	183.67	182.22	180.75	179.63	179.14	178.70
70	142.29	140.70	139.32	138.08	136.73	135.63	134.97	134.58	134.23
75	98.78	97.88	97.03	96.08	95.12	94.61	94.06	93.83	93.62
80	60.88	60.33	59.72	59.40	58.98	58.69	58.41	58.25	58.15
85	29.86	29.75	29.59	29.48	29.39	29.21	29.25	29.12	29.01
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	24.19	24.36	24.46	24.57	24.62	24.57	24.38	24.21	24.06
100	30.86	31.21	31.52	31.81	32.02	32.07	31.83	31.63	31.47
105	33.82	34.22	34.70	34.98	35.18	35.26	35.03	34.89	34.70
110	180.80	72.00	40.19	37.91	37.63	37.54	37.32	37.22	36.98
115	256.80	258.28	260.78	260.03	262.52	261.89	255.39	238.22	230.81
120	315.29	314.73	315.21	318.25	317.07	316.89	321.56	320.45	320.12
125	362.47	364.73	365.08	365.70	366.02	368.08	369.64	367.68	369.07
130	454.58	428.95	416.51	414.80	414.84	417.80	419.24	416.99	419.51
135	549.25	547.83	542.25	511.18	492.66	483.52	474.57	471.37	473.47
140	598.82	597.95	597.18	599.45	600.12	601.93	600.77	600.63	600.57
145	642.13	642.37	643.50	645.18	644.41	642.46	646.87	645.33	645.06
150	678.39	682.55	683.74	684.69	682.87	683.27	682.83	684.51	684.54
155	707.80	709.77	710.14	711.07	711.97	712.82	714.47	717.47	718.27
160	737.38	736.42	735.51	734.68	734.78	735.36	736.77	737.30	740.79
165	760.09	760.31	759.79	758.90	759.67	760.54	763.09	758.07	764.70
170	778.09	779.55	780.73	780.40	780.21	780.80	780.23	778.18	782.75
175	787.91	788.32	788.11	788.09	786.65	788.20	785.11	787.49	787.57
180	791.84	791.84	791.84	791.84	791.84	791.84	791.84	791.84	791.84

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	264.35	N.A.	6.80
0-30	545.71	N.A.	14.00
0-40	864.52	N.A.	22.10
0-60	1433.38	N.A.	36.70
0-80	1731.82	N.A.	44.40
0-90	1764.83	N.A.	45.20
10-90	1695.16	N.A.	43.40
20-40	600.17	N.A.	15.40
20-50	908.11	N.A.	23.30
40-70	760.23	N.A.	19.50
60-80	298.44	N.A.	7.60
70-80	107.07	N.A.	2.70
80-90	33.01	N.A.	0.80
90-110	110.83	N.A.	2.80
90-120	359.88	N.A.	9.20
90-130	713.24	N.A.	18.30
90-150	1520.66	N.A.	39.00
90-180	2138.3	N.A.	54.80
110-180	2027.47	N.A.	51.90
0-180	3903.13	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	69.67
10-20	194.68
20-30	281.36
30-40	318.82
40-50	307.93
50-60	260.92
60-70	191.38
70-80	107.07
80-90	33.01
90-100	24.56
100-110	86.28
110-120	249.05
120-130	353.36
130-140	406.76
140-150	400.66
150-160	328.06
160-170	214.72
170-180	74.86

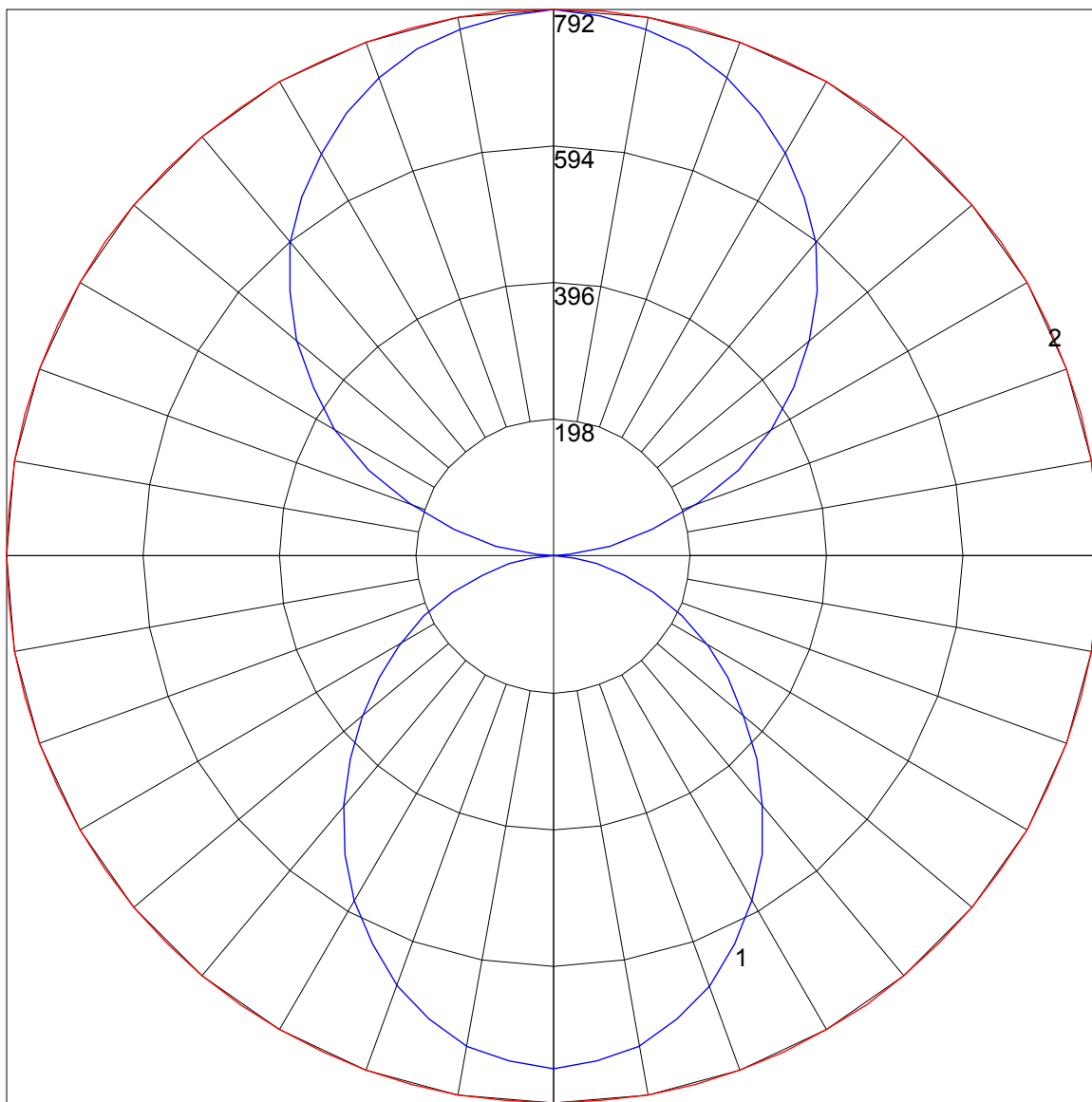
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45
1	97	93	89	85	89	85	82	79	71	68	66	58	56	55	46	45	44	38
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	40	39	37	32
3	81	71	64	58	74	66	59	54	55	50	46	45	42	39	36	34	32	27
4	74	63	55	49	67	58	51	46	49	44	40	40	37	33	32	30	27	24
5	68	56	48	42	62	52	45	40	44	38	34	36	32	29	29	26	24	21
6	62	50	43	37	57	47	40	34	39	34	30	33	29	26	26	23	21	18
7	58	46	38	32	53	42	35	30	36	30	26	30	26	23	24	21	19	16
8	54	41	34	29	49	38	32	27	33	27	23	27	23	20	22	19	17	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13
10	47	35	28	23	43	32	26	22	28	23	19	23	19	16	19	16	14	12

POLAR GRAPH



Maximum Candela = 791.84 Located At Horizontal Angle = 0, Vertical Angle = 180
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (180) (Through Max. Cd.)