

IES Report

ZipTwo® | 707 | Square, Side Diffuse | 90 CRI | SO

707-Z2-4-48-XX-XX-X-0-Z-SO-359-S9-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	85	87	89	91
Total Lumens, 4' rail length (1219mm)	2210	2279	2326	2373
Lumens per foot (305mm)	552	570	582	593
Input Power (W), 4' rail length (1219mm)	26.2	26.2	26.2	26.2
Watts per foot (305mm)	6.6	6.6	6.6	6.6
CRI	95	95	95	95

Due to the large number of options in Vode’s product offering, most Vode IES reports are factored reports prepared from source reports. Source reports are the IES test reports prepared for Vode by an NVLAP accredited photometric test laboratory. Factored reports are based on data from the Vode source reports.

If the data above is in black, it is directly from a Vode source report. If it is in grey, it is factored from Vode source reports. Reference details on Vode source reports can be found on the [IES File Finder](#) page on [vode.com](#).



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

Report No: L031905301



Report No: L031905301

Issue Date: 3/25/2019

Report Prepared For: Vode Lighting
21684 8th Street East, Suite 700, Sonoma, CA 95476

Model Number: 707-Z2-48-Z-SO-359-S9-AL

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: 3/22/19

Date of Tests: 3/22/19 - 3/25/19

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:	Vode Lighting
Model Number:	707-Z2-48-Z-SO-359-S9-AL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	2325.64
Efficacy:	88.90
Color Redering Index:	94.4
Correlated Color Temperature:	3431
Input Voltage (VAC/60Hz):	120.03
Input Current (Amp):	0.2193
Input Power (W):	26.16
Input Power Factor:	0.9938
Current ATHD (%):	8.7%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:20
Total Operating Time (Hours):	2:55

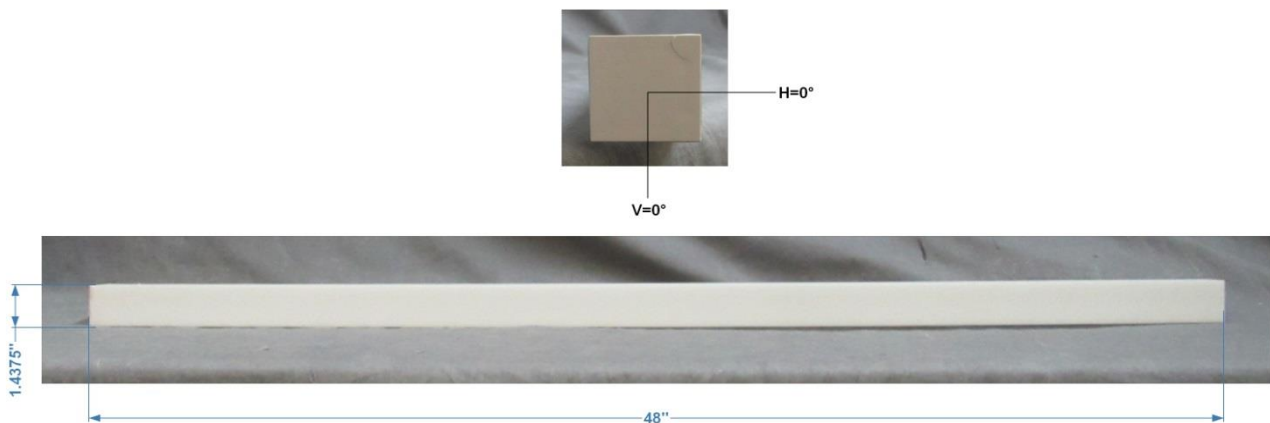
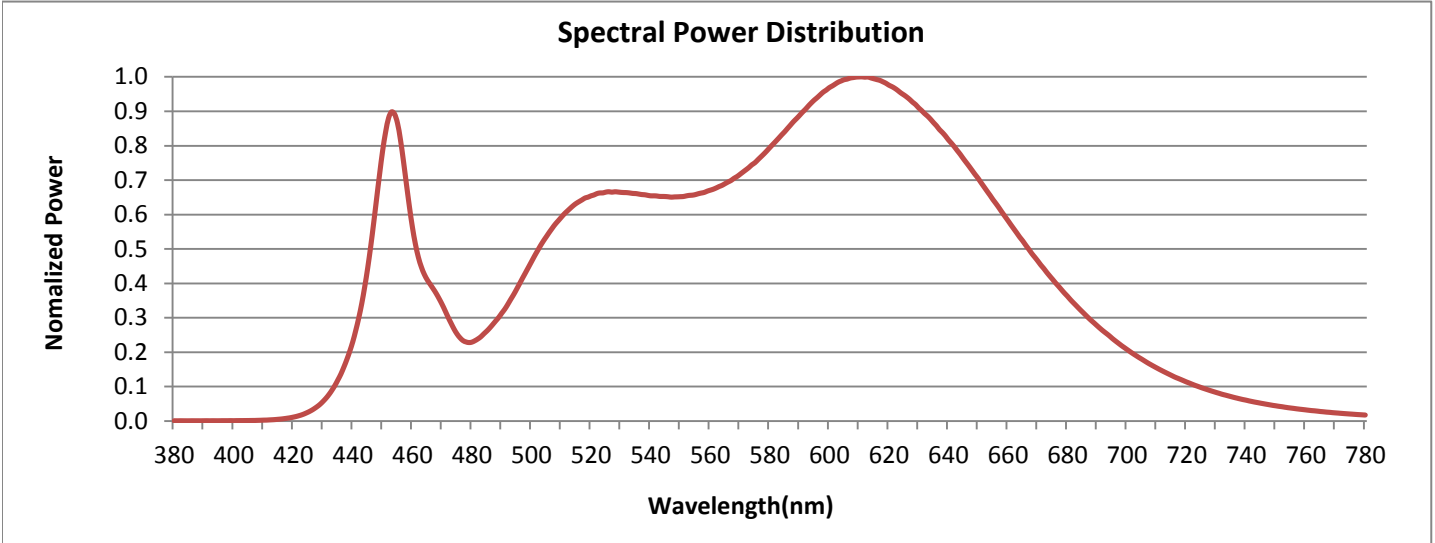


FIG. 1 LUMINAIRE

Colorimetry Test Results

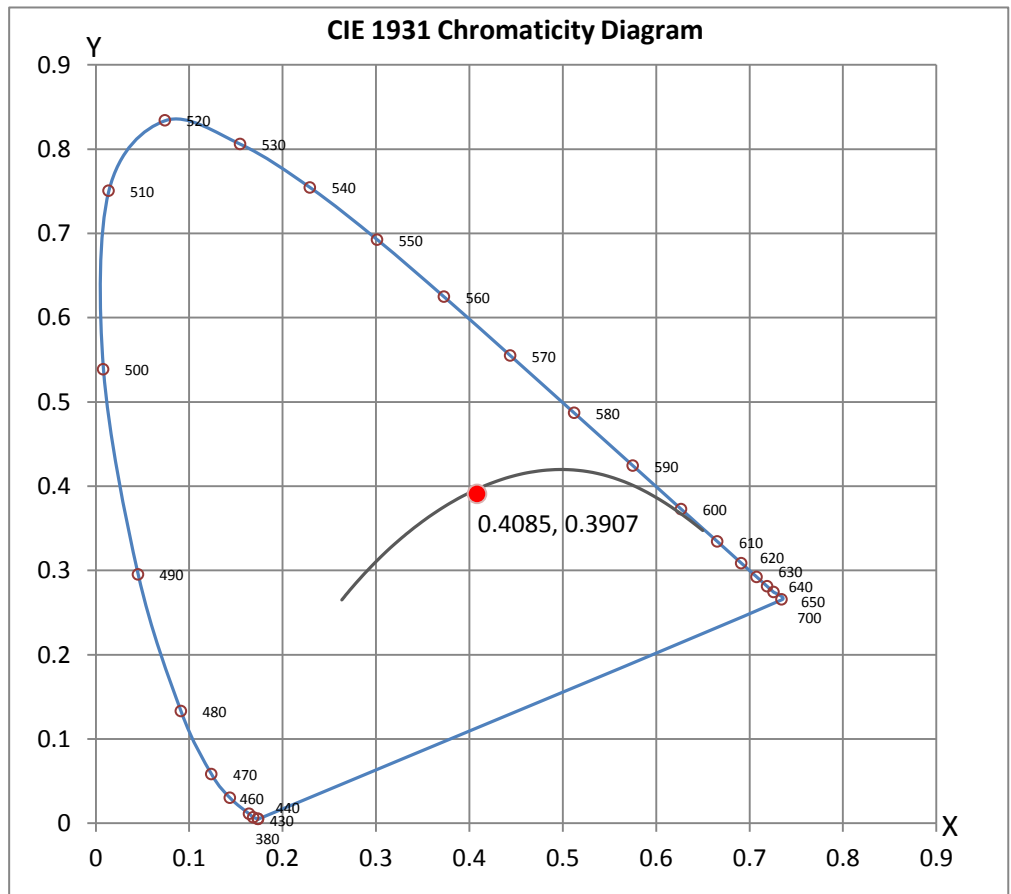


CRI & CCT

x	0.4085
y	0.3907
u'	0.2378
v'	0.5117
CRI	94.40
CCT	3431
Duv	-0.00070

R Values

R1	95.82
R2	97.69
R3	98.61
R4	96.96
R5	96.24
R6	96.29
R7	91.73
R8	81.66
R9	56.89
R10	94.48
R11	96.03
R12	78.17
R13	96.98
R14	98.82
R15	90.11



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*



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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031905301.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L031905301
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
 [ISSUEDATE] 3/25/2019
 [MANUFAC] Vode Lighting
 [LUMCAT] 707-Z2-48-Z-SO-359-S9-AL
 [LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board,
 [MORE] square profile side diffuse lens, standard output
 [BALLASTCAT] MEAN WELL HLG-40H-36A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120.03VAC, 26.16W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2326
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	89
Total Luminaire Watts	26.16
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)	0.12 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.12 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	5855	4017	78
55	6901	4939	88
65	7351	5703	117
75	7408	6302	150
85	7594	7050	337

IES INDOOR REPORT
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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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	24.73	24.69	24.44	23.97	23.30	22.42	21.46	20.33	18.94	17.52
10	55.16	54.95	54.32	53.14	51.55	49.46	47.07	44.18	41.03	37.68
15	91.03	90.57	89.27	87.35	84.37	80.64	76.36	71.29	65.80	59.98
20	132.02	131.31	129.38	126.20	121.71	115.97	109.39	101.72	93.46	84.54
25	177.29	176.32	173.56	169.03	162.79	154.61	145.44	134.83	123.26	110.98
30	225.82	224.61	220.79	214.72	206.38	195.60	183.45	169.66	154.53	138.86
35	275.95	274.40	269.45	261.66	251.26	237.73	222.47	205.24	186.34	166.85
40	325.07	323.02	317.19	307.89	294.98	279.09	260.61	239.86	217.44	194.18
45	369.58	367.36	360.57	349.97	335.30	317.11	295.82	272.01	246.19	219.12
50	405.46	402.86	395.78	384.33	368.53	348.79	325.87	299.38	270.88	240.91
55	429.01	426.67	419.41	407.89	391.75	371.38	347.28	320.38	289.86	257.97
60	438.90	436.81	429.93	418.91	403.45	383.29	359.90	332.53	302.14	270.17
65	436.05	434.00	427.88	417.99	403.57	384.88	362.71	336.55	307.05	275.61
70	423.31	421.68	416.31	407.43	394.35	378.09	357.64	333.29	305.62	275.53
75	404.95	403.36	398.67	391.00	379.64	364.89	346.61	324.65	299.17	270.71
80	385.17	383.79	379.64	372.89	362.75	349.63	333.41	313.25	290.03	263.75
85	367.23	366.02	362.16	355.96	346.78	334.84	320.08	301.93	279.76	255.75
90	352.98	351.81	348.33	342.34	333.62	322.47	308.60	291.21	270.79	248.04
95	342.67	341.46	338.02	332.28	323.81	312.83	299.46	282.74	263.08	241.25
100	335.38	334.29	330.77	325.03	316.52	305.62	292.25	275.70	256.38	235.13
105	329.35	328.30	324.78	318.78	310.40	299.21	285.80	269.20	250.05	228.97
110	323.06	321.80	318.20	312.12	303.53	292.13	278.59	261.99	242.88	222.09
115	314.68	313.34	309.44	303.44	294.73	283.20	269.62	253.11	234.21	213.92
120	302.94	301.64	297.87	291.71	282.99	271.55	258.09	241.92	223.52	203.86
125	287.60	286.39	282.57	276.54	267.99	256.88	243.89	228.25	211.03	191.96
130	268.41	267.23	263.54	257.84	249.63	239.11	226.58	212.12	195.10	174.10
135	245.86	244.77	241.41	235.97	228.42	218.45	207.00	190.24	171.34	153.02
140	220.63	219.62	216.60	211.57	204.74	195.69	180.01	163.58	147.87	132.53
145	193.47	192.50	189.78	185.50	179.22	165.22	151.34	138.18	125.36	113.25
150	164.88	164.13	161.82	158.01	146.65	134.83	124.27	113.83	105.24	96.94
155	135.38	134.71	132.69	125.07	114.17	105.66	98.16	93.55	87.35	79.47
160	104.95	104.40	101.22	90.95	83.99	78.63	76.20	71.84	65.47	57.25
165	71.92	71.17	62.95	57.76	54.40	53.82	51.93	48.33	43.97	40.32
170	40.74	36.51	32.82	31.85	33.70	34.24	33.11	31.94	30.39	28.46
175	20.20	16.30	16.64	18.32	19.32	19.36	19.03	18.44	17.69	16.68
180	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>
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	15.93	14.21	12.45	10.65	8.72	6.83	5.03	3.69	3.27
10	33.95	30.14	26.07	22.00	17.77	13.50	9.22	5.16	3.19
15	53.65	47.19	40.53	33.82	27.16	20.41	13.62	7.25	3.10
20	74.90	65.47	55.79	46.10	36.59	27.29	18.02	9.39	3.10
25	97.99	84.91	71.84	58.59	46.27	34.16	22.38	11.48	2.93
30	121.84	105.24	88.23	71.50	55.95	40.95	26.66	13.50	2.93
35	146.11	125.44	104.65	84.37	65.51	47.61	30.72	15.42	2.93
40	169.41	145.06	120.83	96.73	74.73	53.90	34.49	17.02	2.52
45	191.16	163.21	135.63	108.18	83.28	59.77	37.55	18.57	2.52
50	210.02	179.05	148.62	118.32	90.78	64.63	40.66	20.03	2.35
55	225.07	191.96	159.18	126.62	97.15	68.95	43.63	21.17	2.35
60	235.71	201.35	167.19	133.07	102.14	72.38	45.73	22.09	2.35

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CANDELA TABULATION - (Cont.)

65	241.25	206.79	172.18	137.26	105.41	74.86	47.32	23.22	2.35
70	242.38	208.09	174.31	139.57	107.42	76.32	48.28	23.68	2.01
75	239.86	206.84	174.15	140.45	108.09	77.03	48.87	23.97	1.93
80	234.37	203.57	172.22	139.48	107.80	77.08	49.00	24.02	1.84
85	228.25	199.21	169.12	137.60	107.13	76.57	48.87	24.06	1.76
90	222.13	194.35	165.60	135.04	105.03	75.53	48.70	23.81	1.68
95	216.31	189.57	161.32	132.32	103.10	74.77	48.07	23.97	1.93
100	211.20	184.83	157.42	128.75	100.84	73.35	47.28	23.68	2.01
105	205.45	179.80	152.64	125.32	98.28	71.59	46.31	22.26	2.10
110	198.71	174.06	148.16	121.63	95.22	69.49	45.06	19.24	2.26
115	191.04	167.19	142.25	116.85	91.87	66.89	42.25	17.48	2.43
120	181.90	159.06	135.29	111.11	86.84	62.70	37.72	14.96	2.68
125	170.50	147.61	123.93	100.92	78.33	56.16	31.27	12.70	2.85
130	152.39	131.39	110.61	89.86	69.24	48.49	26.41	11.32	3.19
135	134.08	116.14	97.66	78.42	60.81	39.86	23.26	10.14	3.44
140	116.64	101.47	84.62	68.15	50.34	34.12	20.71	9.30	3.52
145	101.43	88.73	72.13	55.83	41.20	28.84	17.81	8.55	3.69
150	87.09	72.97	58.93	45.85	34.83	25.78	16.35	8.59	4.28
155	67.60	56.58	47.07	37.30	29.84	22.47	14.71	8.76	4.86
160	50.21	43.17	36.51	30.81	25.44	19.62	13.54	8.68	5.45
165	36.55	32.86	29.17	24.98	20.79	16.22	12.16	8.26	5.95
170	26.24	23.85	21.21	18.44	15.51	12.74	9.93	7.42	6.29
175	15.55	14.33	12.95	11.61	10.23	8.89	7.54	6.71	6.37
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	18.37	N.A.	0.80
0-30	67.13	N.A.	2.90
0-40	166.48	N.A.	7.20
0-60	544.47	N.A.	23.40
0-80	1053.79	N.A.	45.30
0-90	1302.47	N.A.	56.00
10-90	1300.48	N.A.	55.90
20-40	148.11	N.A.	6.40
20-50	308.94	N.A.	13.30
40-70	629.11	N.A.	27.10
60-80	509.32	N.A.	21.90
70-80	258.20	N.A.	11.10
80-90	248.69	N.A.	10.70
90-110	450.40	N.A.	19.40
90-120	641.31	N.A.	27.60
90-130	796.00	N.A.	34.20
90-150	975.42	N.A.	41.90
90-180	1023.16	N.A.	44.00
110-180	572.76	N.A.	24.60
0-180	2325.64	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	2.00
10-20	16.37
20-30	48.77
30-40	99.35
40-50	160.83
50-60	217.16
60-70	251.12
70-80	258.20
80-90	248.69
90-100	234.07
100-110	216.33
110-120	190.91
120-130	154.69
130-140	110.87
140-150	68.55
150-160	34.48
160-170	11.68
170-180	1.60

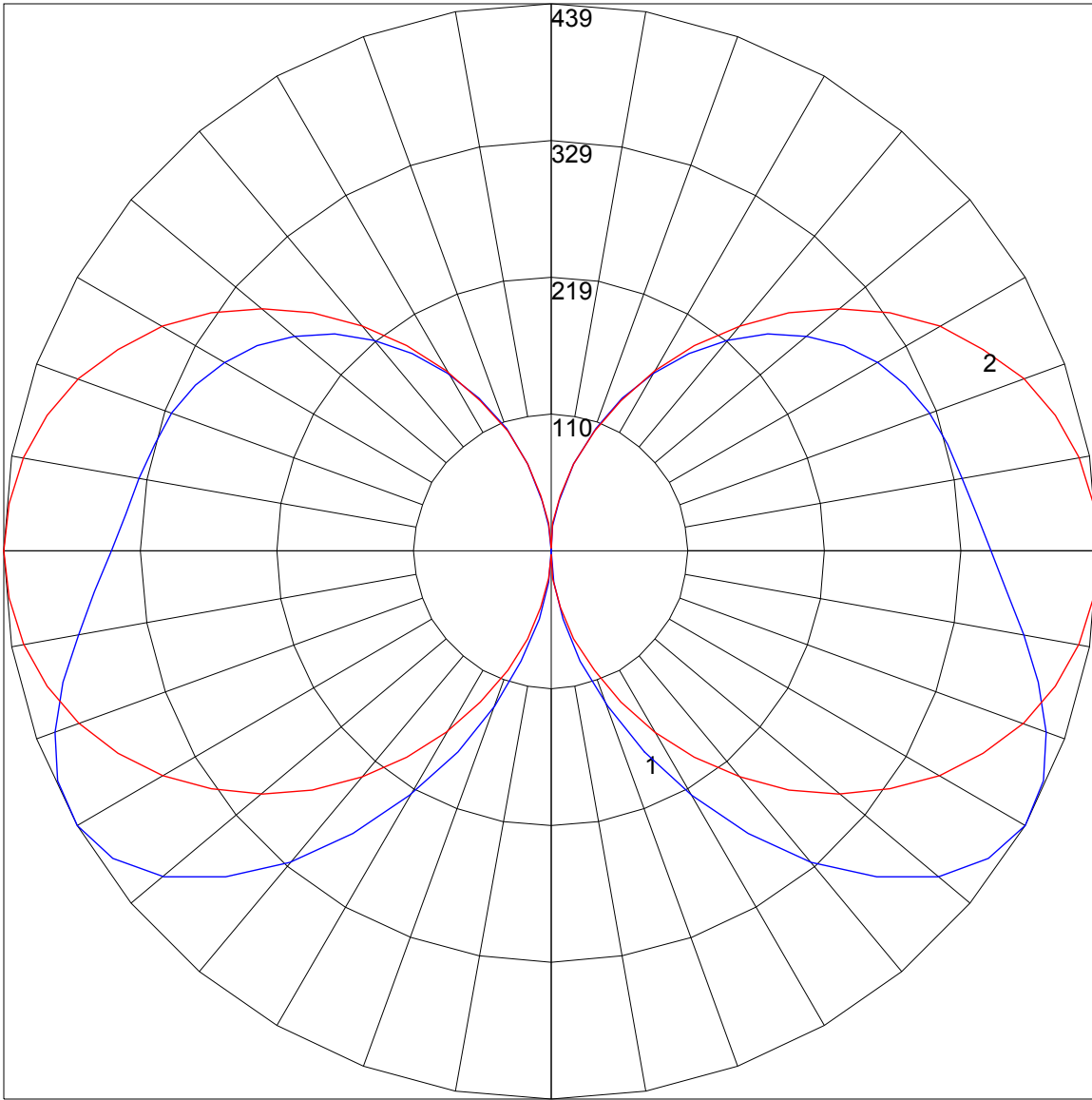
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56
1	93	87	80	75	86	80	74	70	67	63	59	56	53	50	45	43	41	35
2	83	72	64	56	76	66	59	52	56	50	44	46	41	37	36	33	30	25
3	74	61	52	44	67	56	48	41	47	40	34	38	33	28	30	26	22	18
4	67	53	43	35	61	49	40	33	40	33	28	33	27	22	26	21	18	14
5	60	46	36	29	55	42	33	27	35	28	22	29	23	18	22	18	14	11
6	55	41	31	24	50	37	29	22	31	24	19	25	20	15	20	15	12	8
7	51	36	27	20	46	33	25	19	28	21	16	23	17	13	18	13	10	7
8	47	33	24	18	43	30	22	16	25	18	13	20	15	11	16	12	8	6
9	43	29	21	15	40	27	19	14	23	16	12	19	13	9	15	10	7	5
10	40	27	19	13	37	25	17	12	21	14	10	17	12	8	13	9	6	4

POLAR GRAPH



Maximum Candela = 438.9 Located At Horizontal Angle = 0, Vertical Angle = 60
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (60) (Through Max. Cd.)