

IES Report

ZipWave® | 707 | Clear with EdgeSoft™, fixture in cove | 90 CRI | SO

707-Z9-4-48-AC / EL-XX-X-0-Z-SO-359-C1-0-AL-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	94	97	99	103
Total Lumens, 4' rail length (1219mm)	2485	2564	2616	2669
Lumens per foot (305mm)	621	641	654	667
Input Power (W), 4' rail length (1219mm)	26.5	26.5	26.5	26.5
Watts per foot (305mm)	6.7	6.7	6.7	6.7
CRI	96	96	96	96

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](#).

Report No: L101707602 **Issue Date:** 11/1/2017

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

Model Number: 707-Z9-48-AC-Z-SO-359-C1

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: 10/26/17

Date of Tests: 10/27/17 - 11/1/17

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-S1	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
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.

Test Summary

Manufacturer:	Vode Lighting
Model Number:	707-Z9-48-AC-Z-SO-359-C1
Driver Model Number:	eldoLED SOLOdrive 561/M
Total Lumens:	2616.18
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.22
Input Power (W):	26.46
Input Power Factor:	0.98
Current ATHD @ 120V(%):	8%
Current ATHD @ 277V(%):	N/A
Efficacy:	99
Color Rendering Index (CRI):	96
Correlated Color Temperature (K):	3385
Chromaticity Coordinate x:	0.4107
Chromaticity Coordinate y:	0.3907
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:50

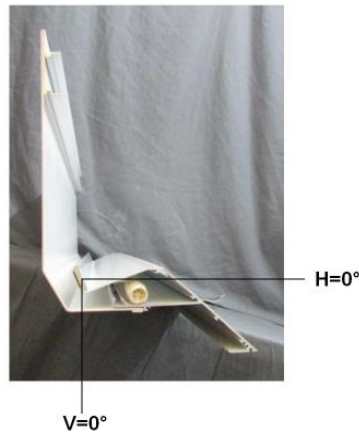
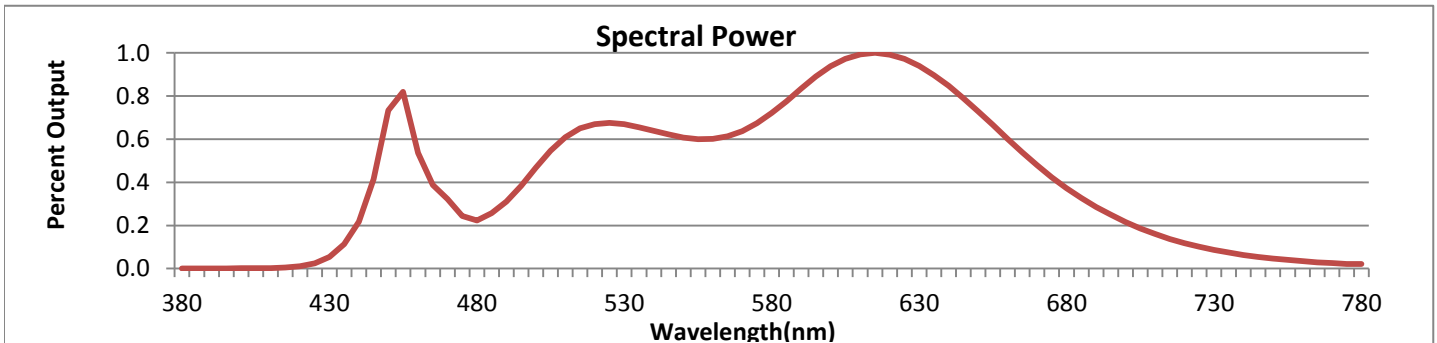


FIG. 1 LUMINAIRE

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



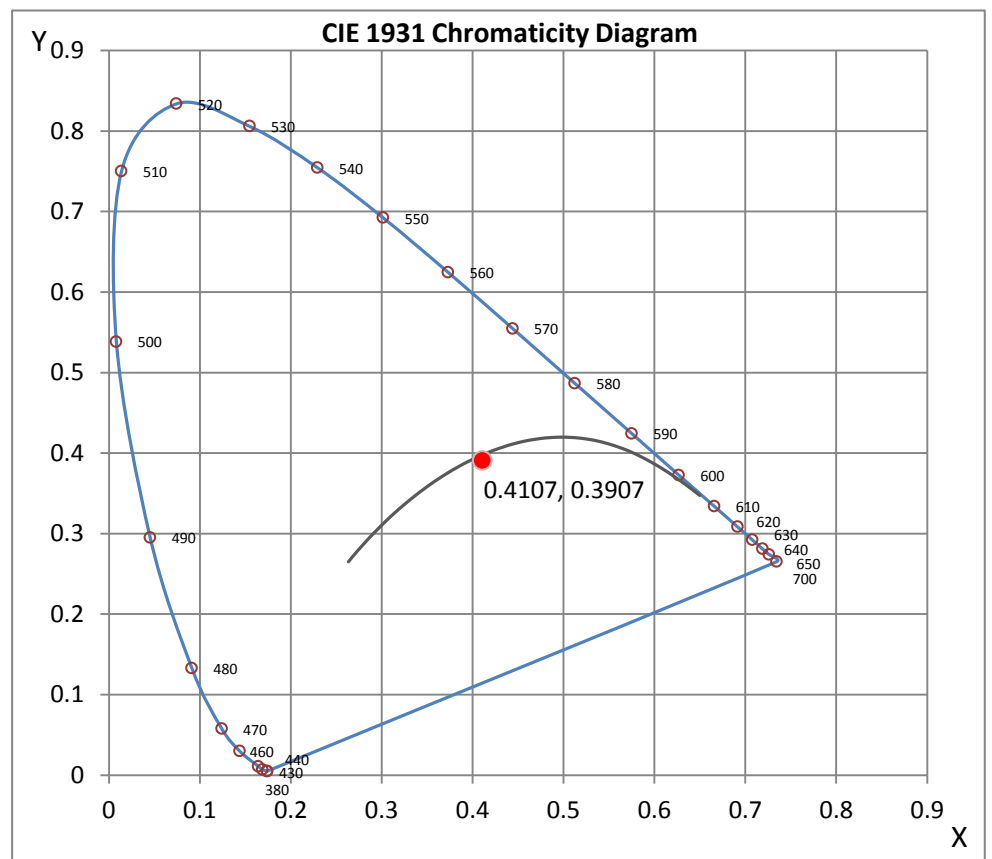
Wavelength	W/m ² nm	440	0.2177	510	0.6083	580	0.7216	650	0.7288	720	0.1183
380	0.0010	450	0.7340	520	0.6705	590	0.8342	660	0.6022	730	0.0869
390	0.0010	460	0.5356	530	0.6692	600	0.9380	670	0.4794	740	0.0634
400	0.0012	470	0.3220	540	0.6380	610	0.9939	680	0.3736	750	0.0466
410	0.0024	480	0.2237	550	0.6080	620	0.9916	690	0.2853	760	0.0344
420	0.0103	490	0.3106	560	0.6011	630	0.9393	700	0.2150	770	0.0254
430	0.0538	500	0.4681	570	0.6378	640	0.8472	710	0.1601	780	0.0218

CRI & CCT

x	0.4107
y	0.3907
u'	0.2392
v'	0.5121
CRI	95.70
CCT	3385
Duv	-0.00115

R Values

R1	97.38
R2	98.73
R3	98.95
R4	95.44
R5	97.50
R6	94.19
R7	94.33
R8	88.85
R9	73.43
R10	97.99
R11	88.35
R12	82.66
R13	97.00
R14	98.49



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

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 Released by:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 11*



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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707602.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L101707602
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 11/1/2017
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z9-48-AC-Z-SO-359-C1
[LUMINAIRE] ZipWave LED, 48", Armstrong ceiling cove part no. AXIDLCKKE812, 3500K, 90 CRI,
[MORE] zipper board, clear lens w/edge softening, standard output
[BALLASTCAT] eldoLED SOLOdrive 561/M
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 26.46W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2616
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	99
Total Luminaire Watts	26.46
Ballast Factor	1.00
CIE Type	Indirect
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)	0.01 ft
Luminous Width (90-270)	4.00 ft
Luminous Height	0.02 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	0	0	0
55	5348	4959	0
65	6856	7243	0
75	8591	10237	0
85	9567	15060	0

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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	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0
50	38	38	37	36	36	35	33	31	29	25
55	44	44	44	44	43	42	40	38	35	32
60	51	51	50	50	49	48	47	45	42	39
65	57	57	56	56	56	56	54	52	49	46
70	63	63	62	62	62	61	60	59	57	54
75	70	70	69	69	69	68	66	64	63	62
80	73	73	73	75	75	76	74	74	73	72
85	74	75	76	80	82	84	85	86	85	84
90	94	107	151	347	134	296	216	130	250	263
95	1198	1113	923	1100	960	1045	963	897	844	729
100	1276	1267	1249	1228	1191	1147	1090	1020	937	843
105	1314	1303	1286	1265	1229	1181	1123	1054	974	881
110	1328	1321	1307	1281	1245	1200	1144	1080	1007	933
115	1344	1338	1321	1295	1263	1225	1182	1134	1087	1033
120	1375	1369	1359	1346	1329	1305	1270	1219	1147	1049
125	1452	1435	1429	1401	1365	1318	1259	1189	1105	1012
130	1388	1381	1365	1340	1304	1256	1199	1133	1056	971
135	1301	1298	1284	1261	1227	1185	1131	1070	999	921
140	1211	1207	1193	1172	1143	1100	1053	996	933	862
145	1110	1104	1089	1069	1041	1006	961	911	854	792
150	986	983	969	951	926	895	857	814	766	716
155	851	847	837	821	801	776	745	713	678	637
160	713	711	705	695	680	663	642	617	594	570
165	595	595	590	584	577	567	555	541	526	510
170	504	504	502	500	496	491	486	479	472	464
175	439	439	439	437	436	434	433	430	428	425
180	393	393	393	393	393	393	393	393	393	393

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>	<u>95</u>
0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0
50	20	13	2	0	0	0	0	0	0	0
55	28	23	16	3	0	0	0	0	0	0
60	35	31	25	17	2	0	0	0	0	0

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

65	42	37	32	26	16	0	0	0	0	0
70	49	44	38	32	26	11	0	0	0	0
75	59	53	46	39	32	24	4	0	0	0
80	69	64	56	47	39	30	17	0	0	0
85	81	75	67	59	50	38	29	10	0	0
90	234	144	212	164	123	91	59	31	0	0
95	633	568	452	357	258	193	124	70	25	0
100	738	626	521	427	344	264	187	114	59	9
105	782	682	593	510	424	329	236	157	95	40
110	854	775	686	580	468	365	273	193	128	68
115	946	832	711	594	490	392	303	228	158	88
120	940	825	709	598	502	412	330	260	196	104
125	912	807	704	599	509	425	350	287	220	136
130	879	784	687	594	508	432	367	314	251	155
135	838	751	664	580	502	437	382	333	282	188
140	787	710	634	561	491	440	393	352	288	212
145	727	662	598	538	482	439	400	367	322	240
150	662	612	560	514	470	436	405	376	344	274
155	601	563	524	492	458	432	408	377	336	293
160	543	516	493	469	445	427	409	387	345	303
165	494	479	463	446	433	420	407	395	363	329
170	454	445	436	428	421	412	404	396	378	353
175	422	419	415	411	408	404	400	396	389	376
180	393	393	393	393	393	393	393	393	393	393

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	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
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	19	0	0	0	0	0	0	0	0	0
115	44	5	0	0	0	0	0	0	0	0
120	60	29	0	0	0	0	0	0	0	0
125	66	46	20	0	0	0	0	0	0	0
130	88	50	38	17	0	0	0	0	0	0
135	104	60	40	33	17	1	0	0	0	0

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CANDELA TABULATION - (Cont.)

140	134	76	47	34	29	19	7	0	0	0
145	161	101	62	42	30	25	22	13	6	0
150	193	134	89	53	39	27	21	19	16	13
155	227	167	120	87	57	39	31	23	16	14
160	261	214	167	121	95	73	53	35	29	24
165	295	261	225	190	156	124	97	84	71	60
170	328	303	279	256	233	212	192	173	156	141
175	362	349	336	324	312	301	290	281	272	264
180	393	393	393	393	393	393	393	393	393	393

Vert. Angles **Horizontal Angles**

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0
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	9	6	4	2	1	0	0
155	13	13	12	11	10	10	0
160	20	17	15	13	12	11	0
165	51	43	36	31	28	26	0
170	127	116	107	99	94	90	0
175	257	250	245	241	238	237	0
180	393	393	393	393	393	393	393

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	0.00	N.A.	0.00
0-30	0.00	N.A.	0.00
0-40	0.00	N.A.	0.00
0-60	13.36	N.A.	0.50
0-80	58.00	N.A.	2.20
0-90	106.46	N.A.	4.10
10-90	106.46	N.A.	4.10
20-40	0.00	N.A.	0.00
20-50	1.99	N.A.	0.10
40-70	31.69	N.A.	1.20
60-80	44.65	N.A.	1.70
70-80	26.32	N.A.	1.00
80-90	48.46	N.A.	1.90
90-110	741.31	N.A.	28.30
90-120	1191.36	N.A.	45.50
90-130	1618.47	N.A.	61.90
90-150	2222.52	N.A.	85.00
90-180	2509.71	N.A.	95.90
110-180	1768.4	N.A.	67.60
0-180	2616.18	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	0.00
10-20	0.00
20-30	0.00
30-40	0.00
40-50	1.99
50-60	11.37
60-70	18.33
70-80	26.32
80-90	48.46
90-100	307.33
100-110	433.98
110-120	450.05
120-130	427.11
130-140	348.93
140-150	255.12
150-160	163.25
160-170	90.78
170-180	33.17

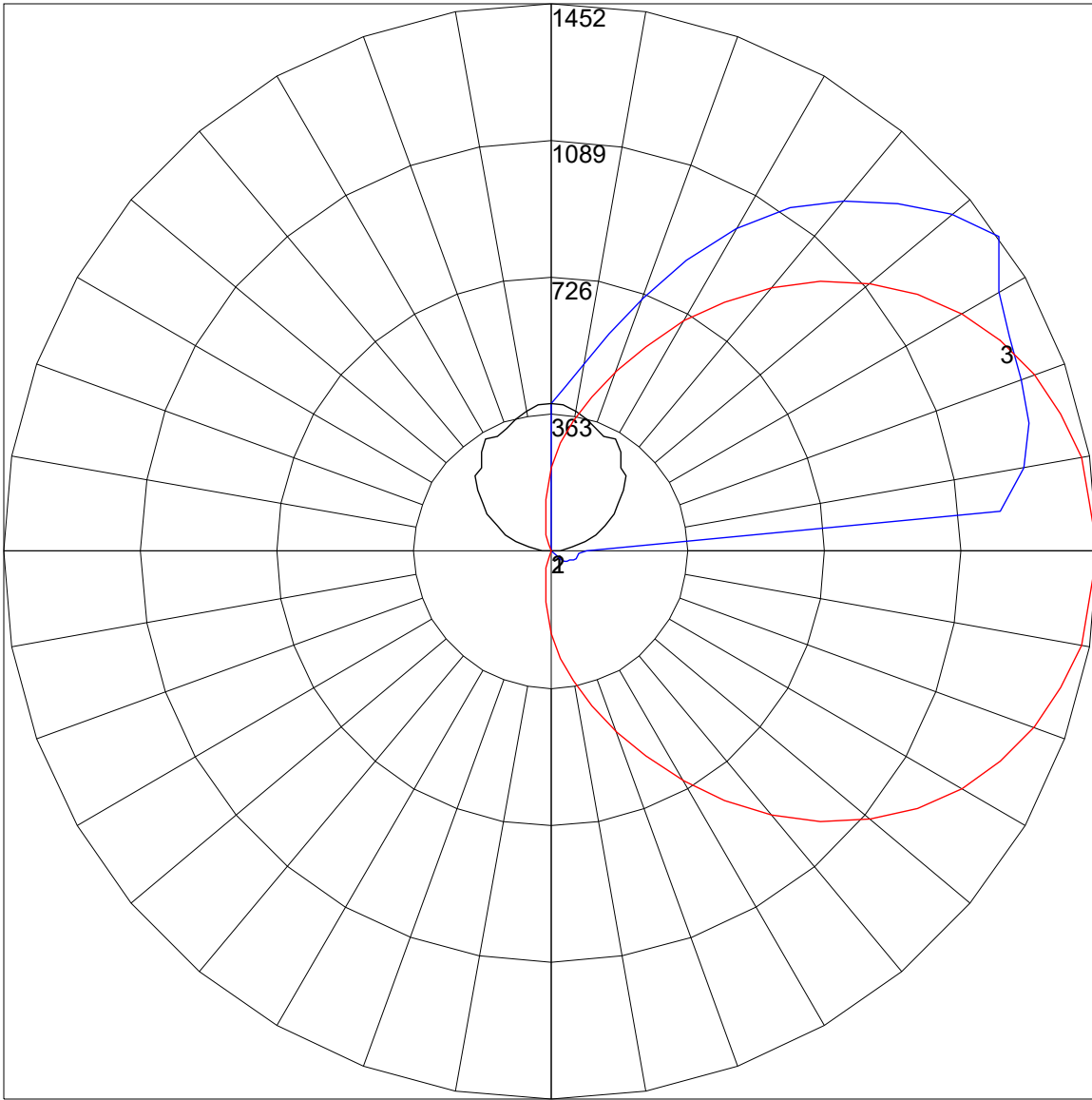
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	
0	96	96	96	96	83	83	83	83	58	58	58	35	35	35	14	14	14	4
1	87	82	78	75	74	71	68	65	49	47	45	29	28	27	11	10	10	2
2	79	71	65	60	67	61	57	52	43	40	37	25	24	22	9	9	8	1
3	71	62	55	50	61	54	48	43	37	34	31	22	20	18	8	7	6	1
4	65	55	47	42	56	47	41	36	33	29	26	19	17	15	7	6	5	0
5	60	49	41	35	51	42	36	31	29	25	22	17	15	13	6	5	5	0
6	55	43	36	30	47	37	31	26	26	22	19	15	13	11	6	5	4	0
7	50	39	31	26	43	33	27	23	23	19	16	14	11	10	5	4	3	0
8	46	35	28	23	40	30	24	20	21	17	14	13	10	8	5	4	3	0
9	43	31	25	20	37	27	21	17	19	15	12	11	9	7	4	3	3	0
10	40	29	22	17	34	25	19	15	17	14	11	10	8	7	4	3	2	0

POLAR GRAPH



Maximum Candela = 1452 Located At Horizontal Angle = 0, Vertical Angle = 125

1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)

2 - Vertical Plane Through Horizontal Angles (90 - 270)

3 - Horizontal Cone Through Vertical Angle (125) (Through Max. Cd.)