

IES Report

ZipThree® | 707 | 85° Asymmetric , downlight only | 90 CRI | SO

707-Z3-4-48-XX-XX-X-0-Z-SO-359-A1-X-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	65	67	68	71
Total Lumens, 4' rail length (1219mm)	1673	1726	1761	1779
Lumens per foot (305mm)	418	432	440	445
Input Power (W), 4' rail length (1219mm)	26.1	26.1	26.1	26.1
Watts per foot (305mm)	6.6	6.6	6.6	6.6
CRI	94	94	94	94

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: L121911544



Report No: L121911544

Issue Date: 12/24/2019

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

Model Number: 707-Z3-48-Z-SO-359-A1-BL

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: 12/16/19

Date of Tests: 12/17/19 - 12/24/19

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-Z3-48-Z-SO-359-A1-BL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	1761.25
Efficacy:	67.43
Color Redering Index:	94.2
Correlated Color Temperature:	3412
Input Voltage (VAC/60Hz):	120.03
Input Current (Amp):	0.2188
Input Power (W):	26.12
Input Power Factor:	0.9944
Current ATHD (%):	7.9%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:25

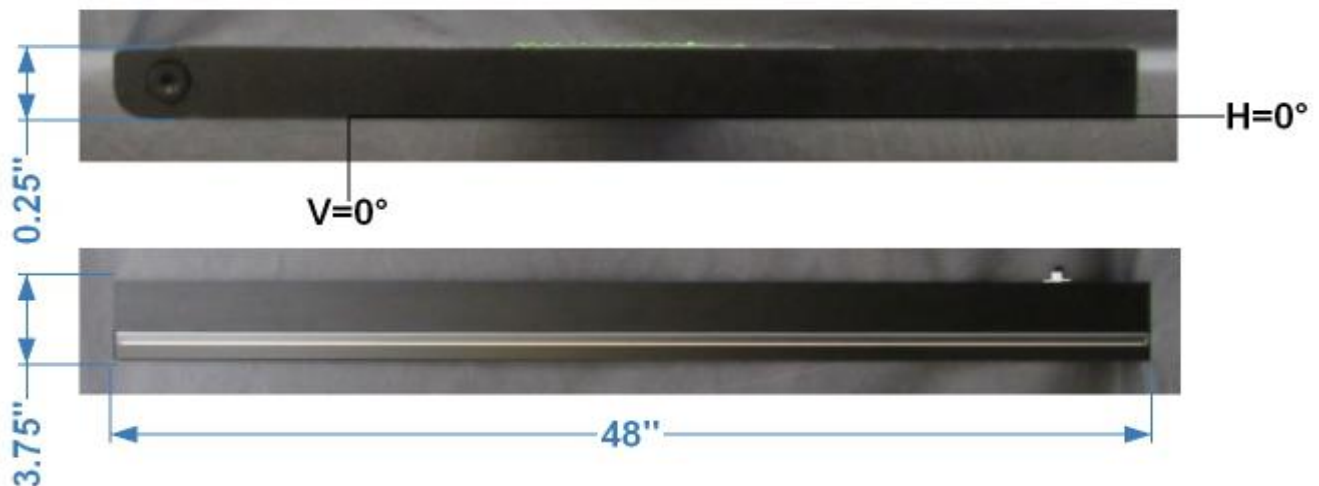
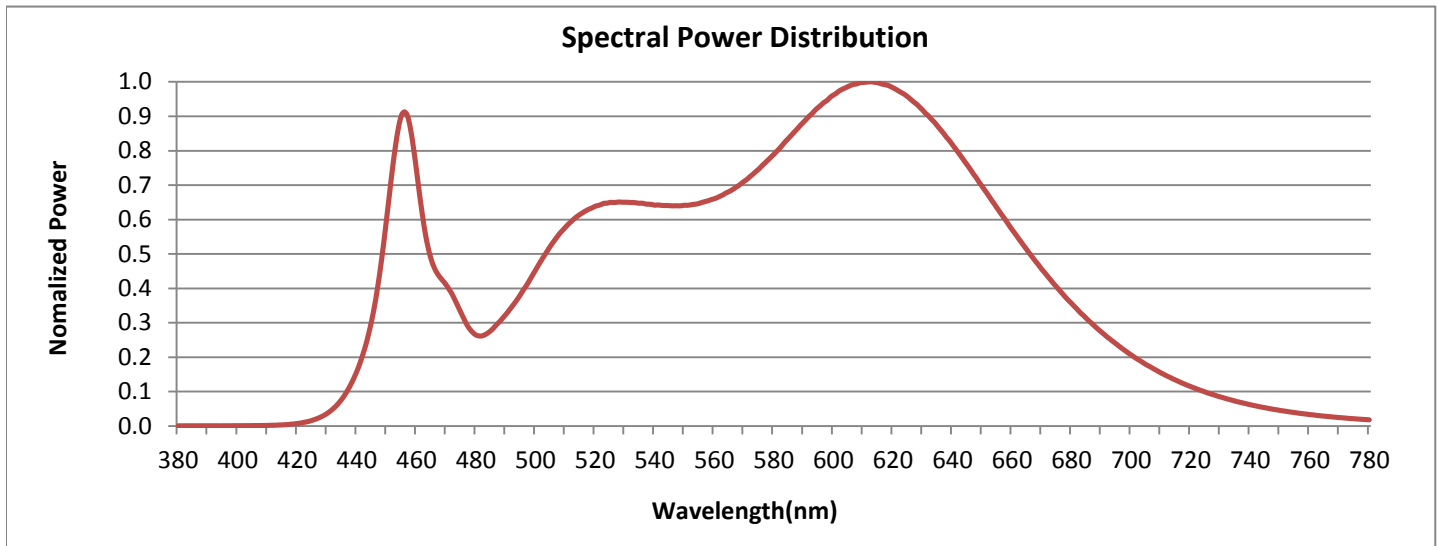


FIG. 1 LUMINAIRE

Colorimetry Test Results

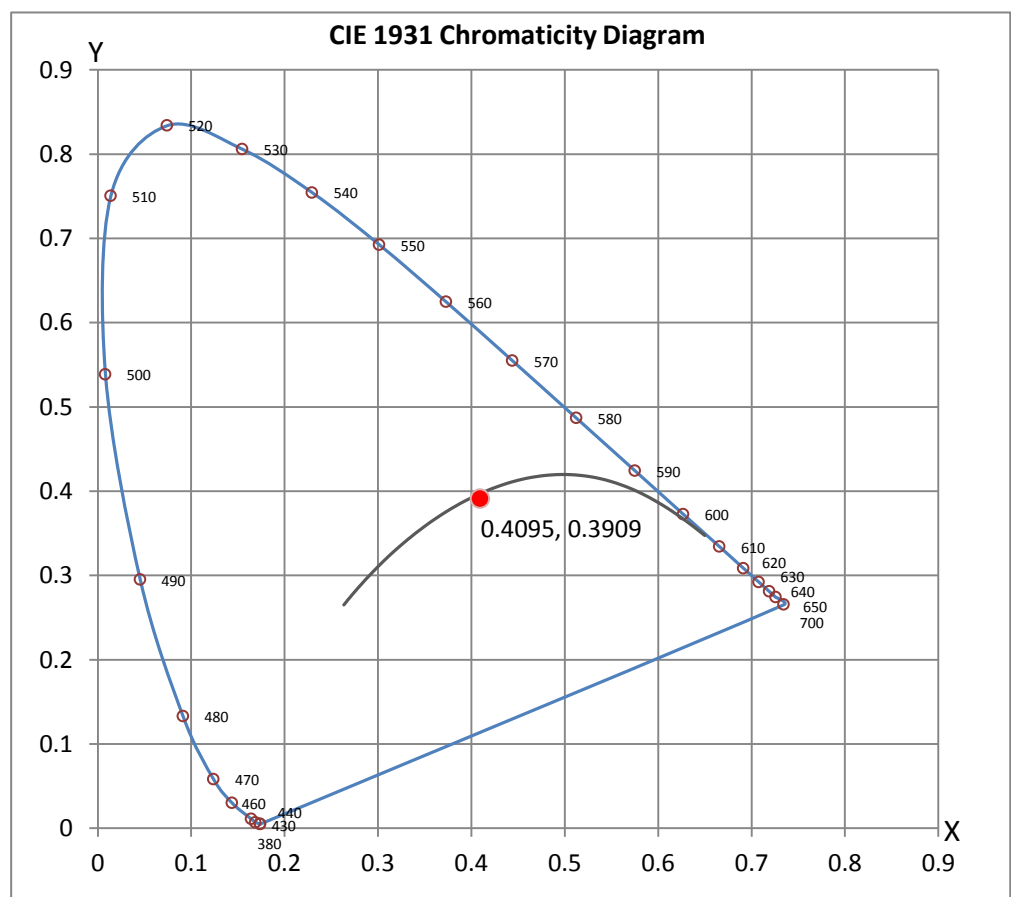


CRI & CCT

x	0.4095
y	0.3909
u'	0.2384
v'	0.5120
CRI	94.20
CCT	3412
Duv	-0.00082

R Values

R1	96.42
R2	99.20
R3	97.93
R4	96.50
R5	96.35
R6	95.56
R7	90.47
R8	81.36
R9	58.46
R10	97.88
R11	98.00
R12	76.71
R13	98.16
R14	99.60
R15	90.74





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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*



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911544.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911544
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 12/24/2019
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z3-48-Z-SO-359-A1-BL
[LUMINAIRE] ZipThree LED, 48", 3500K, 90 CRI, zipper board, 85° asymmetric lens down,
[MORE] standard output, black anodized finish
[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, 26.12W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1761
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	67
Total Luminaire Watts	26.12
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.70
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.26
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.04 ft
Luminous Width (90-270)	3.98 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	71838	70023	43752
55	62653	61828	37568
65	51627	50987	30209
75	39931	38888	22706
85	29452	26351	13951

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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	755	755	755	755	755	755	755	755	755	755
5	854	854	852	851	848	845	841	836	831	825
10	944	943	942	938	934	929	921	913	903	892
15	1000	999	997	993	988	981	973	963	951	937
20	1025	1024	1022	1019	1013	1006	997	987	975	960
25	1018	1017	1015	1012	1008	1002	994	984	972	958
30	984	983	982	980	977	972	965	957	947	934
35	926	926	925	923	921	917	912	906	898	887
40	847	847	846	845	844	841	838	833	827	819
45	752	751	751	751	750	749	747	744	739	733
50	644	644	644	644	643	643	642	640	637	632
55	532	532	532	532	532	533	532	531	529	525
60	422	422	423	423	423	423	423	422	421	418
65	323	323	323	323	323	323	323	322	321	319
70	231	231	231	231	231	231	231	230	229	227
75	153	153	153	152	152	152	152	151	150	149
80	88	88	88	88	88	87	87	86	85	84
85	38	37	37	37	37	37	36	36	35	34
90	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles
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	755	755	755	755	755	755	755	755	755	755
5	819	812	804	796	788	779	770	761	752	742
10	880	866	851	835	818	800	781	762	741	722
15	921	903	883	860	837	810	782	754	723	693
20	942	922	898	872	843	810	774	737	699	659
25	940	919	894	866	834	797	756	712	666	618
30	917	898	873	844	811	772	726	678	626	569
35	873	856	833	804	772	733	685	633	577	517
40	807	791	772	747	715	678	631	579	521	459
45	724	711	694	673	644	607	564	514	458	397
50	626	616	602	582	557	525	487	441	387	333
55	520	513	501	485	464	437	402	363	319	273
60	414	407	399	386	369	346	319	287	251	214
65	316	311	304	294	281	263	241	216	189	159
70	225	221	216	209	199	187	171	153	134	113
75	147	144	141	136	129	121	111	99	87	73
80	83	81	78	75	72	67	61	55	48	41
85	33	32	31	30	28	26	23	21	18	16
90	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles
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	755	755	755	755	755	755	755	755	755	755
5	733	723	714	705	696	688	681	674	667	661
10	701	680	661	641	622	605	588	572	558	545
15	663	631	601	572	543	517	493	470	450	431
20	619	577	538	501	464	431	401	373	349	328
25	568	519	474	430	387	350	317	288	263	241
30	515	460	409	361	317	277	245	216	192	173
35	458	400	338	299	255	217	186	160	140	123

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CANDELA TABULATION - (Cont.)

40	399	337	289	240	201	167	140	118	101	87
45	336	286	235	192	155	127	104	86	73	63
50	284	233	188	151	120	96	82	64	54	47
55	228	185	147	117	92	74	60	49	41	35
60	176	142	114	90	71	56	46	38	32	28
65	132	106	86	68	53	43	35	29	25	21
70	94	76	61	48	39	31	26	21	18	16
75	61	50	40	32	26	22	18	15	13	12
80	34	28	23	19	16	13	11	9	8	7
85	13	11	9	8	7	6	5	5	4	4
90	0	0	0	0	0	0	0	0	0	0

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	755	755	755	755	755	755	755
5	656	651	647	645	642	641	641
10	534	524	516	511	506	503	503
15	415	402	391	383	377	373	372
20	309	295	283	274	267	263	262
25	223	209	198	189	183	180	178
30	157	145	135	128	123	120	119
35	110	100	92	86	83	81	80
40	77	69	63	59	56	55	54
45	55	49	45	42	40	39	38
50	41	37	34	31	30	29	29
55	31	28	26	24	23	22	22
60	24	22	20	19	18	18	18
65	19	17	16	15	15	14	14
70	14	13	12	12	11	11	11
75	10	10	9	9	8	8	8
80	7	6	6	6	5	5	5
85	3	3	3	3	3	3	3
90	0	0	0	0	0	0	0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	269.33	N.A.	15.30
0-30	558.22	N.A.	31.70
0-40	890.24	N.A.	50.50
0-60	1473.43	N.A.	83.70
0-80	1737.96	N.A.	98.70
0-90	1761.25	N.A.	100.00
10-90	1690.26	N.A.	96.00
20-40	620.91	N.A.	35.30
20-50	942.45	N.A.	53.50
40-70	758.58	N.A.	43.10
60-80	264.53	N.A.	15.00
70-80	89.14	N.A.	5.10
80-90	23.29	N.A.	1.30
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	1761.25	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	70.99
10-20	198.34
20-30	288.90
30-40	332.01
40-50	321.54
50-60	261.66
60-70	175.39
70-80	89.14
80-90	23.29
90-100	0.00
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

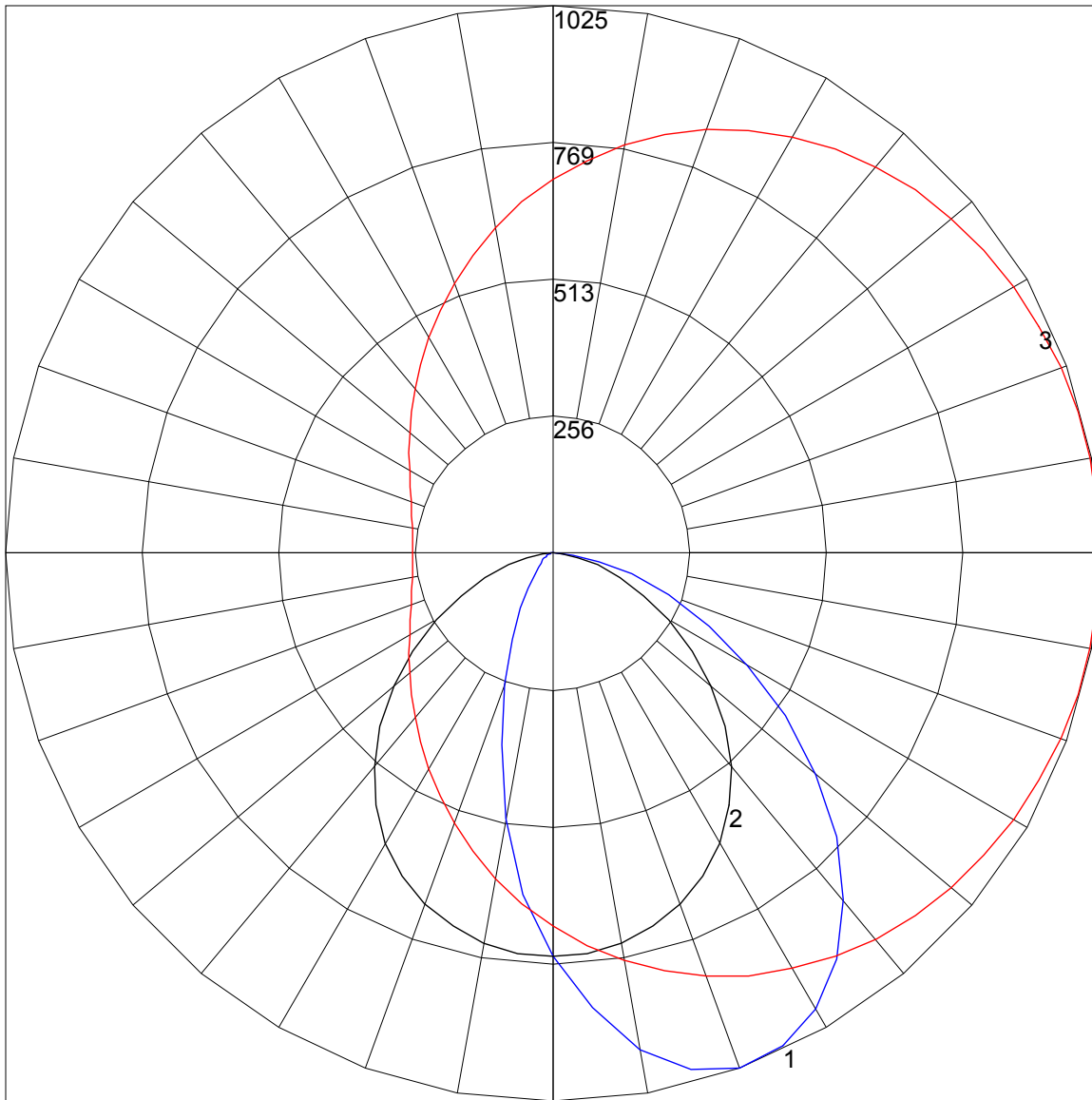
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	88	86
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	75	73
3	92	82	74	68	90	80	73	68	78	71	66	75	70	65	72	68	64	62
4	85	73	65	58	82	72	64	58	69	63	57	67	61	57	65	60	56	54
5	78	66	57	51	76	65	57	51	63	55	50	61	54	49	59	53	49	47
6	72	60	51	45	70	59	50	45	57	50	44	55	49	44	54	48	43	41
7	67	54	46	40	66	53	45	40	52	45	39	50	44	39	49	43	39	37
8	63	50	41	36	61	49	41	36	48	40	35	46	40	35	45	39	35	33
9	59	46	38	32	57	45	37	32	44	37	32	43	36	32	42	36	32	30
10	55	42	35	29	54	42	34	29	41	34	29	40	34	29	39	33	29	27

POLAR GRAPH



Maximum Candela = 1025 Located At Horizontal Angle = 0, Vertical Angle = 20
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 (20) (Through Max. Cd.)