

IES Report

ZipTwo® | 707 | Micro 3508, High Lumen with microbaffle | 90 CRI | SO 707-Z2-4-48-XX-XX-X-0-Z-SO-359-D4-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	114	117	120	121
Total Lumens, 4' rail length (1219mm)	2954	3048	3110	3141
Lumens per foot (305mm)	739	762	777	785
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: L121911535



Report No: L121911535

Issue Date: 1/13/2020

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

Model Number: 707-Z2-48-Z-SO-359-D4-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: 12/16/19

Date of Tests: 1/8/19 - 1/13/19

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-D4-AL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	3109.97
Efficacy:	119.23
Color Redering Index:	93.7
Correlated Color Temperature:	3333
Input Voltage (VAC/60Hz):	119.99
Input Current (Amp):	0.2186
Input Power (W):	26.08
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):	1:20

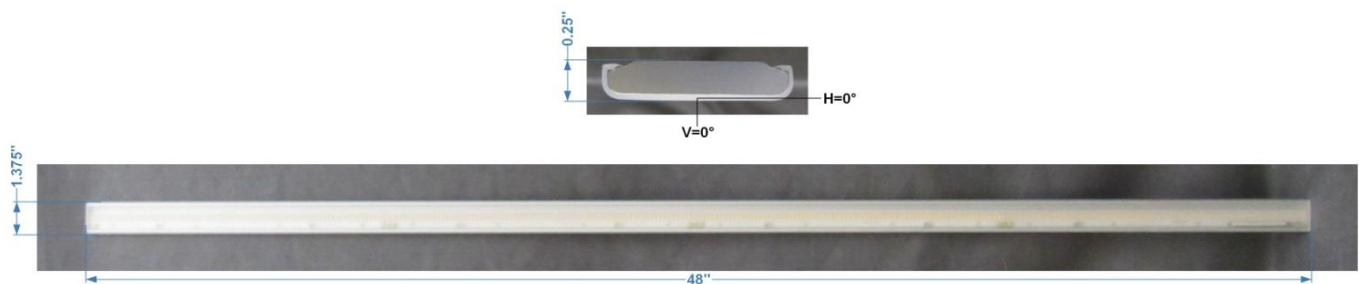
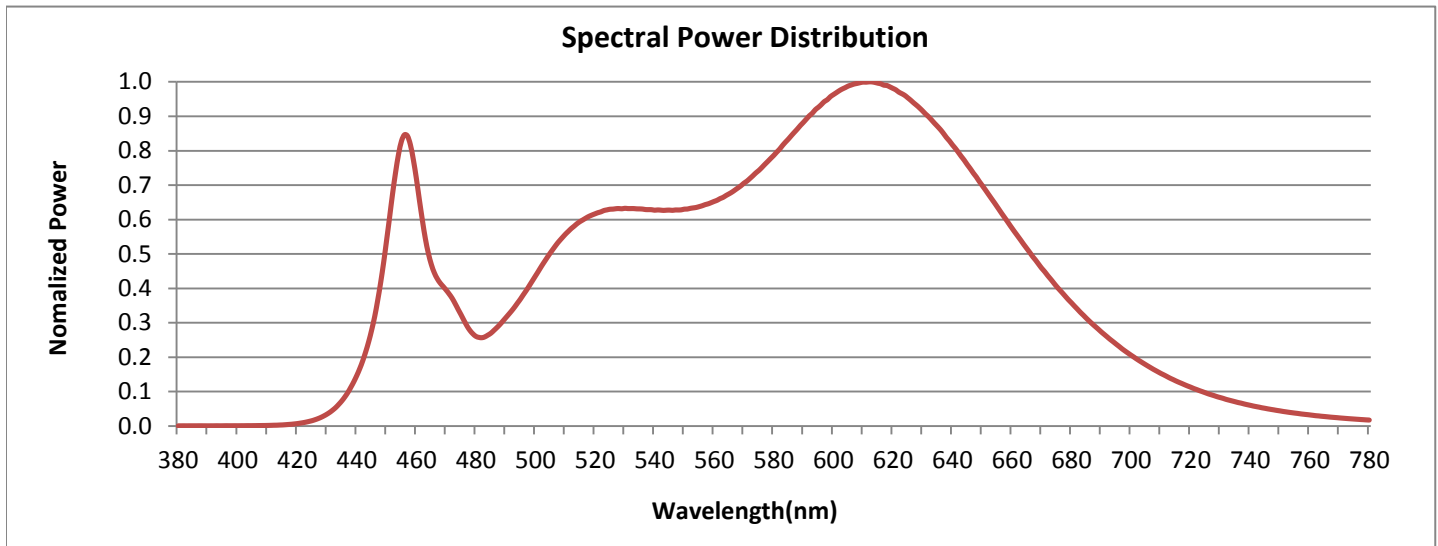


FIG. 1 LUMINAIRE

Colorimetry Test Results

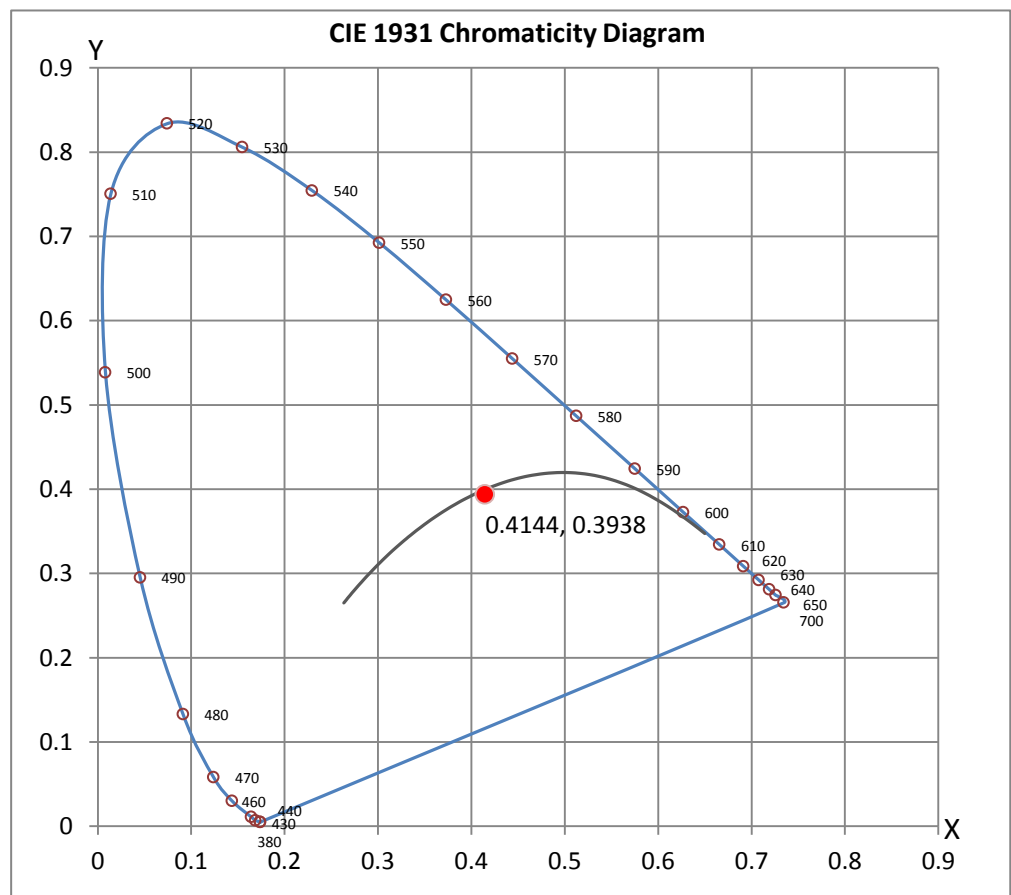


CRI & CCT

x	0.4144
y	0.3938
u'	0.2403
v'	0.5139
CRI	93.70
CCT	3333
Duv	-0.00055

R Values

R1	95.85
R2	99.10
R3	97.61
R4	95.76
R5	95.87
R6	95.70
R7	89.90
R8	80.09
R9	55.95
R10	97.56
R11	98.48
R12	77.23
R13	97.63
R14	99.54
R15	89.83





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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 : L121911535.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] L121911535

[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)

[ISSUEDATE] 1/13/2020

[MANUFAC] Vode Lighting

[LUMCAT] 707-Z2-48-Z-SO-359-D4-AL

[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board, micro 3508, high lumen lens with microbaffle,

[MORE] standard output, clear 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] 119.99VAC, 26.08W

[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3110
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	119
Total Luminaire Watts	26.08
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.12
Spacing Criterion (Diagonal)	1.24
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.08 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	37925	33674	29041
55	33270	28147	23200
65	28451	23416	18861
75	24403	19835	15659
85	27126	21314	14338

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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	1365	1365	1365	1365	1365	1365	1365	1365	1365	1365
5	1360	1359	1359	1359	1359	1359	1359	1359	1359	1359
10	1339	1339	1339	1339	1338	1338	1337	1336	1336	1335
15	1304	1304	1304	1303	1301	1300	1299	1297	1295	1293
20	1253	1252	1251	1250	1248	1246	1243	1240	1236	1232
25	1186	1186	1184	1183	1179	1175	1171	1165	1159	1153
30	1106	1105	1103	1100	1095	1089	1082	1075	1065	1056
35	1011	1010	1008	1004	998	990	981	970	958	945
40	906	905	902	898	890	881	869	856	842	825
45	794	793	790	785	776	766	753	738	722	705
50	679	678	675	670	661	650	637	621	605	587
55	565	564	561	556	548	537	525	510	494	478
60	457	456	453	448	441	431	420	407	394	379
65	356	355	353	349	343	335	326	315	304	293
70	265	265	263	260	255	249	242	234	225	217
75	187	187	185	183	180	175	170	165	158	152
80	123	123	122	120	118	115	111	108	103	99
85	70	70	69	68	67	65	63	60	58	55
90	30	30	29	28	27	26	25	23	21	19
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	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

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	1365	1365	1365	1365	1365	1365	1365	1365	1365
5	1359	1358	1358	1358	1358	1358	1358	1358	1357
10	1334	1333	1332	1332	1331	1331	1331	1330	1330
15	1291	1289	1287	1285	1283	1282	1281	1281	1280
20	1228	1224	1220	1217	1214	1211	1209	1208	1208
25	1146	1139	1133	1127	1121	1117	1114	1112	1111
30	1046	1036	1026	1018	1010	1003	999	996	994
35	932	919	906	895	885	877	871	867	866
40	810	794	780	766	756	746	740	736	734
45	687	670	655	641	629	620	613	609	608
50	570	553	538	525	514	505	499	495	494
55	462	447	433	422	412	404	399	395	394
60	366	353	342	332	324	317	313	310	309

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CANDELA TABULATION - (Cont.)

65	281	271	262	254	248	243	239	237	236
70	209	201	194	188	183	179	176	174	174
75	146	141	136	131	128	125	122	121	120
80	95	91	88	84	82	79	77	76	76
85	52	50	47	45	43	41	39	38	37
90	18	16	14	12	10	8	7	5	4
95	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	492.75	N.A.	15.80
0-30	1021.43	N.A.	32.80
0-40	1609.68	N.A.	51.80
0-60	2583.8	N.A.	83.10
0-80	3042.95	N.A.	97.80
0-90	3104.88	N.A.	99.80
10-90	2975.97	N.A.	95.70
20-40	1116.93	N.A.	35.90
20-50	1660.18	N.A.	53.40
40-70	1268.47	N.A.	40.80
60-80	459.15	N.A.	14.80
70-80	164.80	N.A.	5.30
80-90	61.93	N.A.	2.00
90-110	5.10	N.A.	0.20
90-120	5.10	N.A.	0.20
90-130	5.10	N.A.	0.20
90-150	5.10	N.A.	0.20
90-180	5.10	N.A.	0.20
110-180	0.00	N.A.	0.00
0-180	3109.97	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	128.91
10-20	363.84
20-30	528.68
30-40	588.25
40-50	543.25
50-60	430.87
60-70	294.35
70-80	164.80
80-90	61.93
90-100	5.10
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

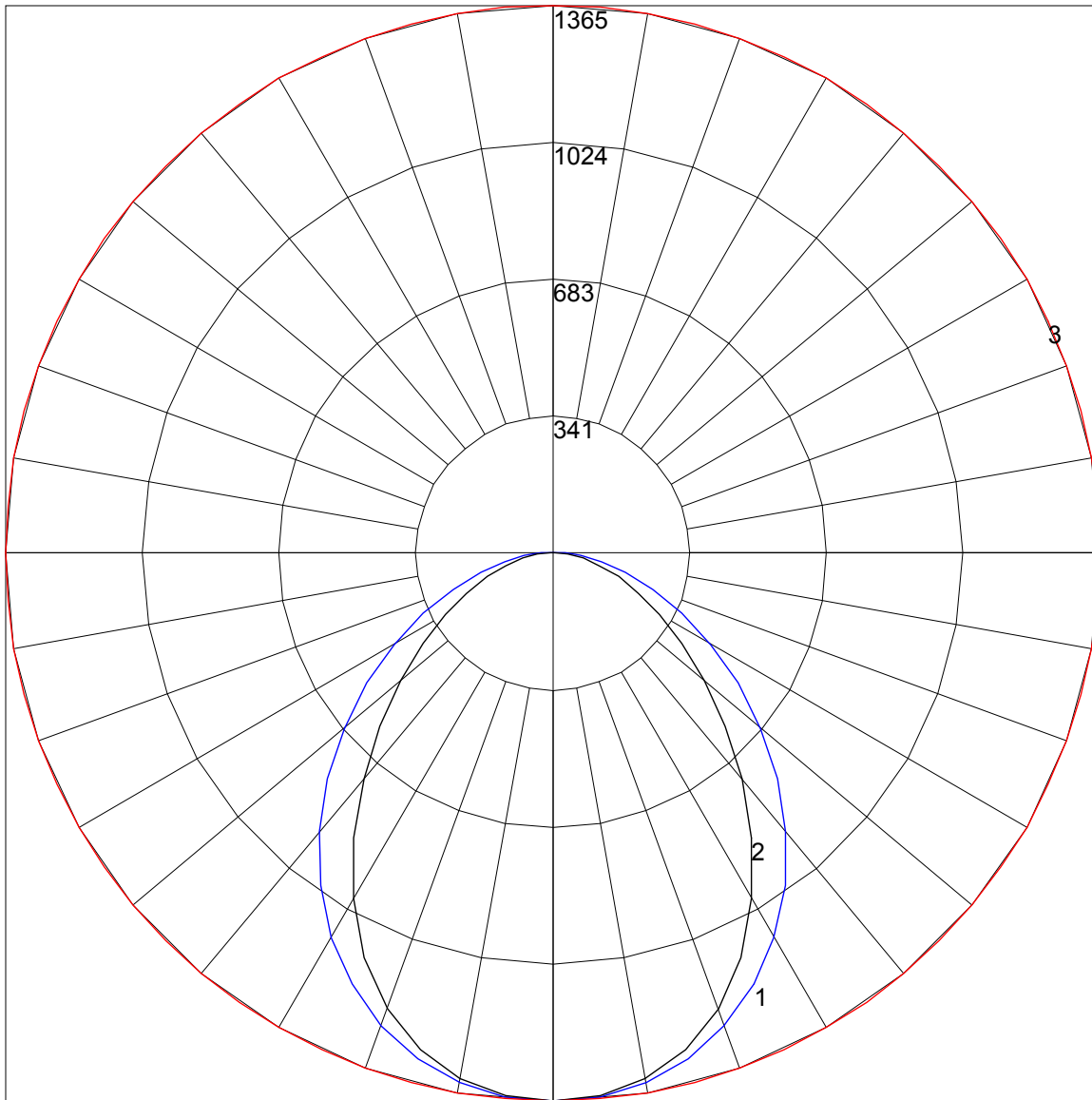
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72
3	92	82	74	68	90	80	73	68	78	71	66	75	70	65	72	68	64	62
4	85	73	65	59	82	72	64	58	70	63	57	67	61	57	65	60	56	54
5	78	66	57	51	76	65	57	51	63	56	50	61	55	50	59	54	49	47
6	73	60	51	45	71	59	51	45	57	50	45	55	49	44	54	48	44	42
7	68	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39	37
8	63	50	42	36	62	49	42	36	48	41	36	47	40	36	46	40	35	34
9	59	46	38	33	58	46	38	33	44	37	33	43	37	32	42	37	32	30
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30	28

POLAR GRAPH



Maximum Candela = 1365 Located At Horizontal Angle = 0, Vertical Angle = 0

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 (0) (Through Max. Cd.)