

IES Report

ZipTwo® | 707 | Micro 3508, 60° Symmetric | 90 CRI | SO

707-Z2-4-48-XX-XX-X-0-Z-SO-359-S2-X-BL-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	53	55	56	56
Total Lumens, 4' rail length (1219mm)	1365	1408	1437	1452
Lumens per foot (305mm)	341	352	359	363
Input Power (W), 4' rail length (1219mm)	26.0	26.0	26.0	26.0
Watts per foot (305mm)	6.5	6.5	6.5	6.5
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: L121911528



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Issue Date: 1/7/2020

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

Model Number: 707-Z2-48-Z-SO-359-S2-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: 1/3/19 - 1/7/19

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-S2-BL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	1437.16
Efficacy:	55.21
Color Redering Index:	93.8
Correlated Color Temperature:	3438
Input Voltage (VAC/60Hz):	120.01
Input Current (Amp):	0.2182
Input Power (W):	26.03
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):	1:35

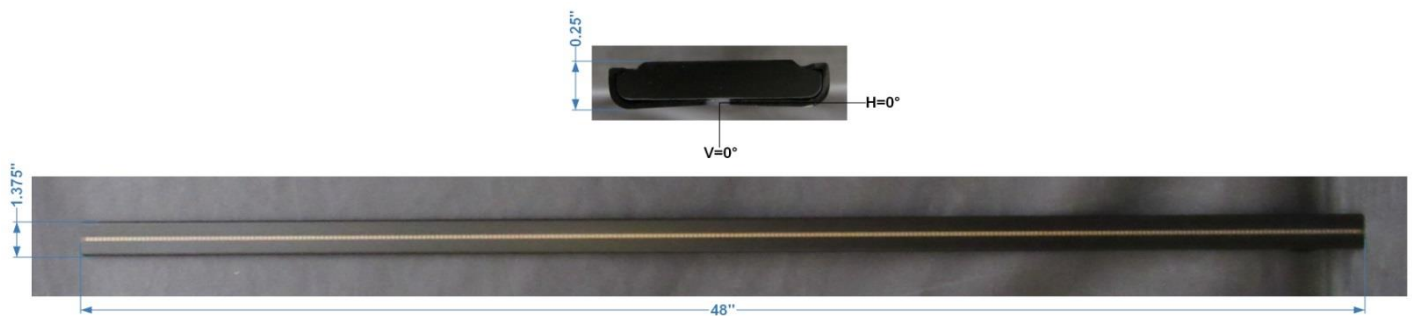
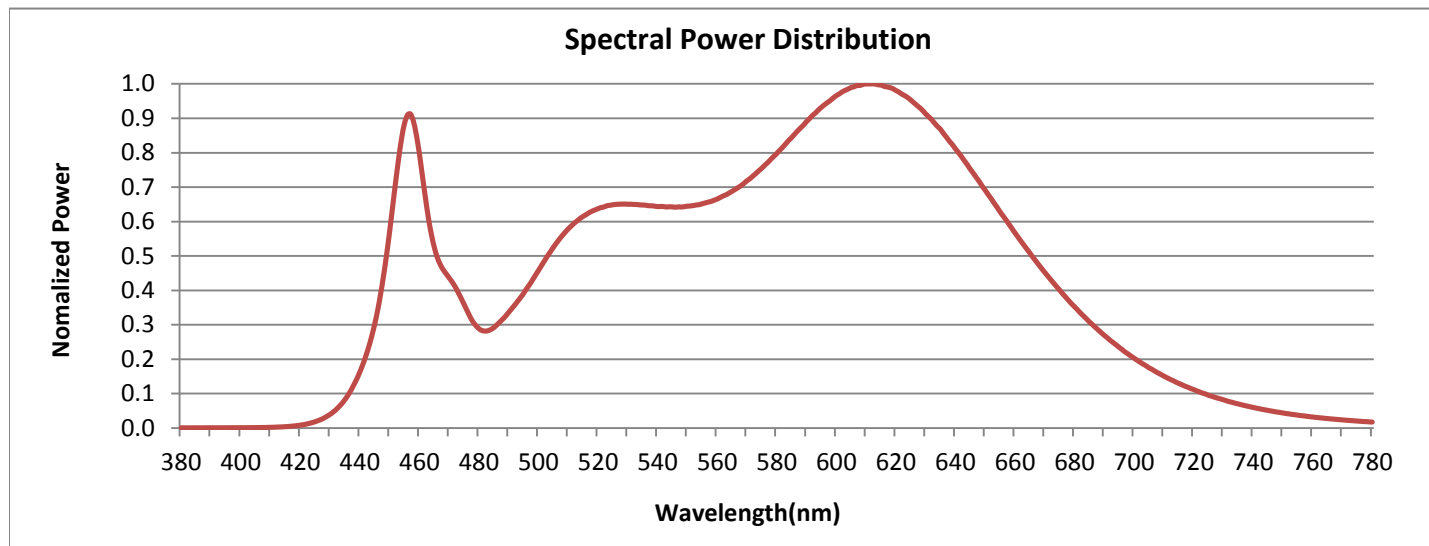


FIG. 1 LUMINAIRE

Colorimetry Test Results

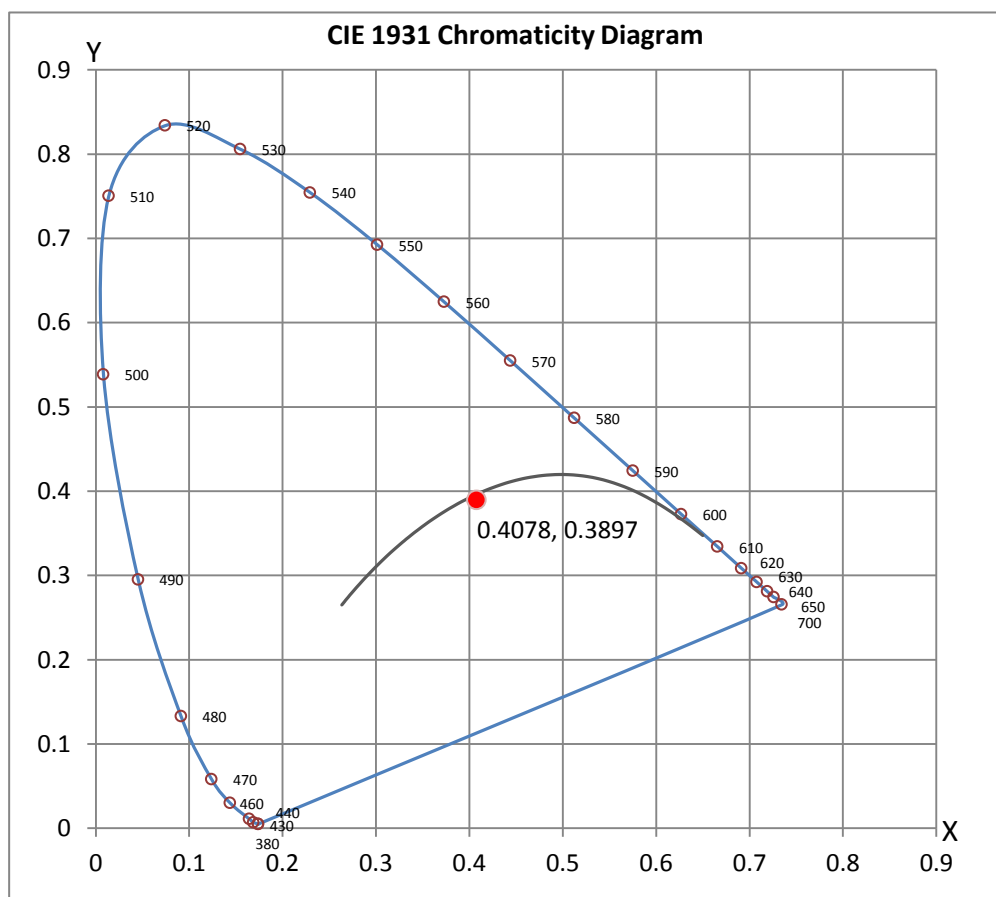


CRI & CCT

x	0.4078
y	0.3897
u'	0.2378
v'	0.5112
CRI	93.80
CCT	3438
Duv	-0.00099

R Values

R1	96.21
R2	99.38
R3	97.21
R4	95.66
R5	96.03
R6	95.27
R7	89.82
R8	80.70
R9	57.56
R10	98.56
R11	98.58
R12	76.67
R13	98.13
R14	99.38
R15	90.53





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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: 9*



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911528.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911528
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/7/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-Z-SO-359-S2-BL
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board, micro 3508, 60° symmetric black lens,
[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] 120.01VAC, 26.03W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1437
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	55
Total Luminaire Watts	26.03
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.84
Spacing Criterion (90-270)	1.08
Spacing Criterion (Diagonal)	0.96
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.02 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	26748	45758	68781
55	12483	22612	35566
65	7033	12147	18861
75	4176	7308	11484
85	3100	4650	6200

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911528.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>
0.0	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190
1.0	1191	1190	1190	1191	1190	1190	1190	1190	1191	1191
3.0	1185	1185	1185	1185	1186	1186	1186	1186	1187	1187
5.0	1173	1173	1173	1173	1174	1175	1176	1176	1177	1178
7.0	1152	1152	1153	1154	1155	1157	1158	1160	1163	1165
9.0	1125	1124	1126	1127	1130	1132	1135	1138	1143	1146
11.0	1088	1088	1090	1092	1095	1100	1105	1110	1115	1121
13.0	1044	1045	1047	1050	1055	1061	1068	1076	1084	1091
15.0	993	994	998	1002	1009	1016	1025	1035	1046	1056
17.0	936	938	941	947	955	965	976	989	1003	1016
19.5	857	858	863	870	881	894	908	924	941	958
22.5	753	755	761	770	783	798	817	837	858	880
25.5	644	646	653	663	678	696	717	740	766	792
29.0	520	522	530	541	557	577	599	625	653	682
33.0	391	393	400	411	426	446	469	496	525	555
37.5	270	272	278	287	301	318	339	363	390	419
42.5	172	173	178	185	195	209	225	244	265	288
47.5	108	109	112	117	124	133	145	159	174	191
55.0	53	54	55	58	62	66	72	80	88	96
65.0	22	22	22	23	25	27	29	32	35	38
75.0	8	8	9	9	10	10	11	12	13	14
85.0	2	2	2	2	2	3	3	3	3	3
90.0	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>
0.0	1190	1190	1190	1190	1190	1190	1190	1190	1190
1.0	1190	1190	1191	1191	1191	1191	1191	1191	1190
3.0	1187	1188	1188	1188	1188	1188	1188	1189	1189
5.0	1179	1180	1182	1182	1183	1183	1184	1184	1184
7.0	1167	1169	1171	1173	1174	1176	1177	1177	1177
9.0	1150	1154	1156	1160	1162	1164	1166	1166	1166
11.0	1127	1132	1137	1142	1146	1149	1151	1152	1152
13.0	1099	1107	1114	1120	1126	1130	1133	1135	1136
15.0	1067	1077	1086	1095	1102	1108	1112	1115	1116
17.0	1029	1042	1054	1065	1074	1081	1087	1090	1090
19.5	976	993	1008	1021	1033	1042	1049	1052	1054
22.5	903	923	942	958	972	985	993	998	1000
25.5	818	842	865	886	903	916	926	932	934
29.0	712	740	766	790	810	825	837	843	845
33.0	586	616	645	670	691	707	718	726	728
37.5	448	477	504	528	549	564	575	582	584
42.5	314	337	360	380	397	410	419	425	427
47.5	209	226	243	257	270	280	287	291	293
55.0	106	115	123	131	138	144	148	150	151
65.0	41	45	48	51	54	56	58	59	59
75.0	15	16	17	19	20	21	21	22	22
85.0	3	3	4	4	4	4	4	4	4
90.0	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911528.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	388.16	N.A.	27.00
0-30	737.41	N.A.	51.30
0-40	1017.21	N.A.	70.80
0-60	1333.42	N.A.	92.80
0-80	1426.78	N.A.	99.30
0-90	1437.16	N.A.	100.00
10-90	1346.71	N.A.	93.70
20-40	629.05	N.A.	43.80
20-50	850.62	N.A.	59.20
40-70	381.91	N.A.	26.60
60-80	93.36	N.A.	6.50
70-80	27.66	N.A.	1.90
80-90	10.38	N.A.	0.70
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	1437.16	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	90.45
10-20	297.71
20-30	349.25
30-40	279.79
40-50	221.57
50-60	94.64
60-70	65.70
70-80	27.66
80-90	10.38
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

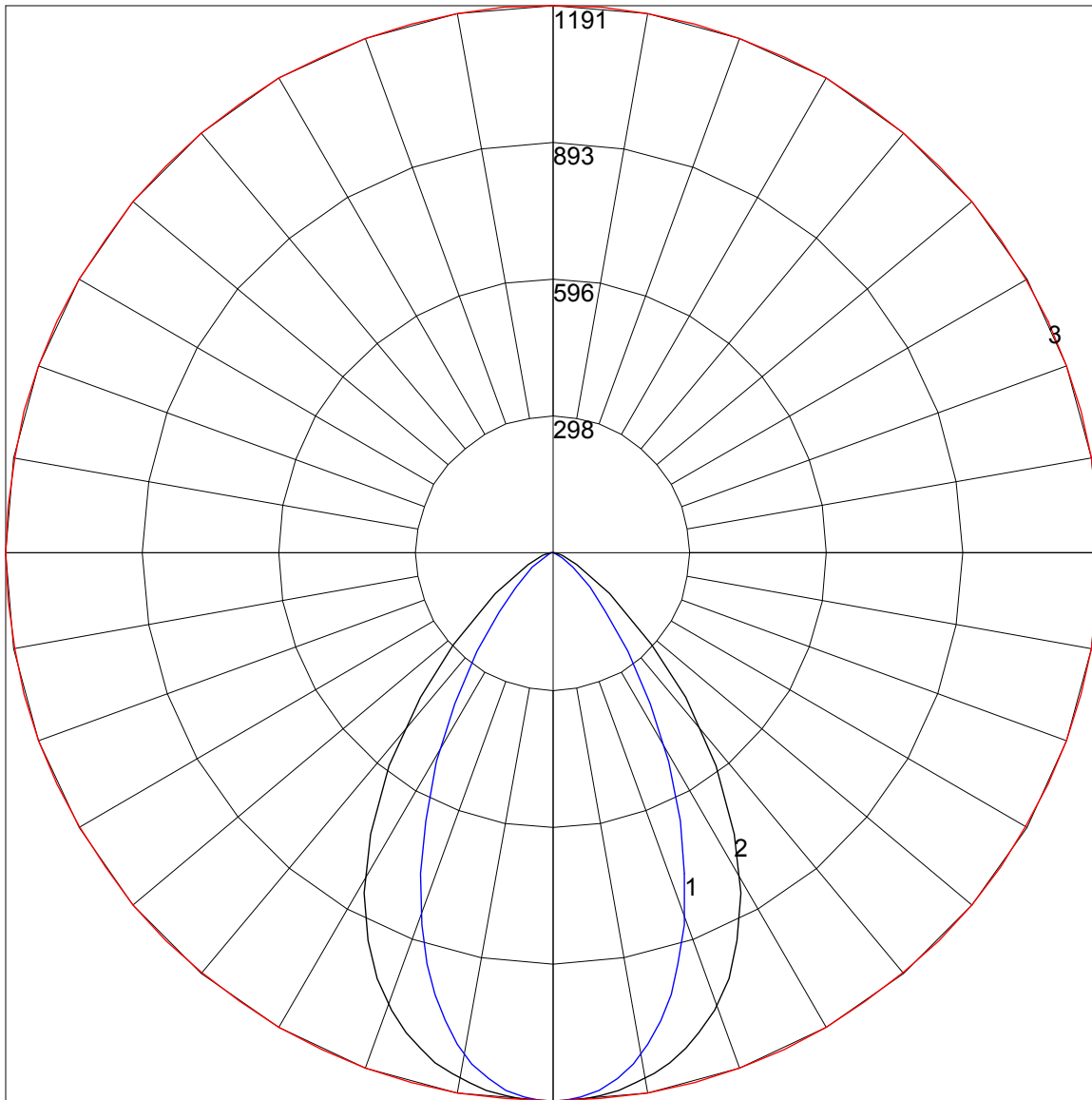
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	112	108	105	102	109	106	103	101	102	100	97	98	96	94	95	93	92	90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80
3	98	89	83	78	95	88	82	78	85	80	76	83	79	75	80	77	74	72
4	91	82	75	70	89	81	74	69	78	73	68	76	71	68	74	70	67	65
5	85	75	68	63	84	74	68	62	72	66	62	70	65	61	69	64	61	59
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49
8	71	60	53	48	70	59	52	48	58	52	47	57	51	47	56	51	47	45
9	67	56	49	44	66	55	49	44	54	48	44	53	48	44	52	47	44	42
10	63	52	45	41	62	52	45	41	51	45	41	50	45	41	49	44	40	39

POLAR GRAPH



Maximum Candela = 1191 Located At Horizontal Angle = 0, Vertical Angle = 1

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 (1) (Through Max. Cd.)