

IES File

Performance Summary

The performance data in black text is confirmed through third party testing (see the following Light Laboratory report for details). The performance data in grey text is calculated by Vode. For reference only.



BoxRail LED - Zipper board™ with Diffuse Lens, Standard Output

BoxRail LED, 48", 3500K, Zipper board with diffuse lens, standard output
107-BX-X-4-48-X-X-X-X-X-Z-SO-35-1-X-X-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	87	90	94	98
Total Lumens, 4' rail length (1219mm)	2166	2260	2354	2448
Lumens per foot (305mm)	541	565	589	612
Input Power (W), 4' rail length (1219mm)	25.2	25.2	25.2	25.2
Watts per foot (305mm)	6.3	6.3	6.3	6.3
CRI (>80min., 85 avg.)	-	-	84	-

Report No: L031700403

Issue Date: 3/23/2017

Report Prepared For: Vode Lighting
1206 E MacArthur Suite 3 Sonoma, CA 95476

Model Number: 107-BX-48-Z-SO-35-1-AL

Test: Electrical and Photometric tests

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: 3/15/17

Date of Tests: 3/22/17 - 3/23/17

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:	107-BX-48-Z-SO-35-1-AL
Driver Model Number:	MEAN WELL HLG-40H-36A(700mA)
Total Lumens:	2354.19
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.21
Input Power (W):	25.15
Input Power Factor:	0.99
Current ATHD @ 120V(%):	9%
Current ATHD @ 277V(%):	N/A
Efficacy:	94
Color Rendering Index (CRI):	84
Correlated Color Temperature (K):	3489
Chromaticity Coordinate x:	0.4068
Chromaticity Coordinate y:	0.3934
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:55
Total Operating Time (Hours):	1:50

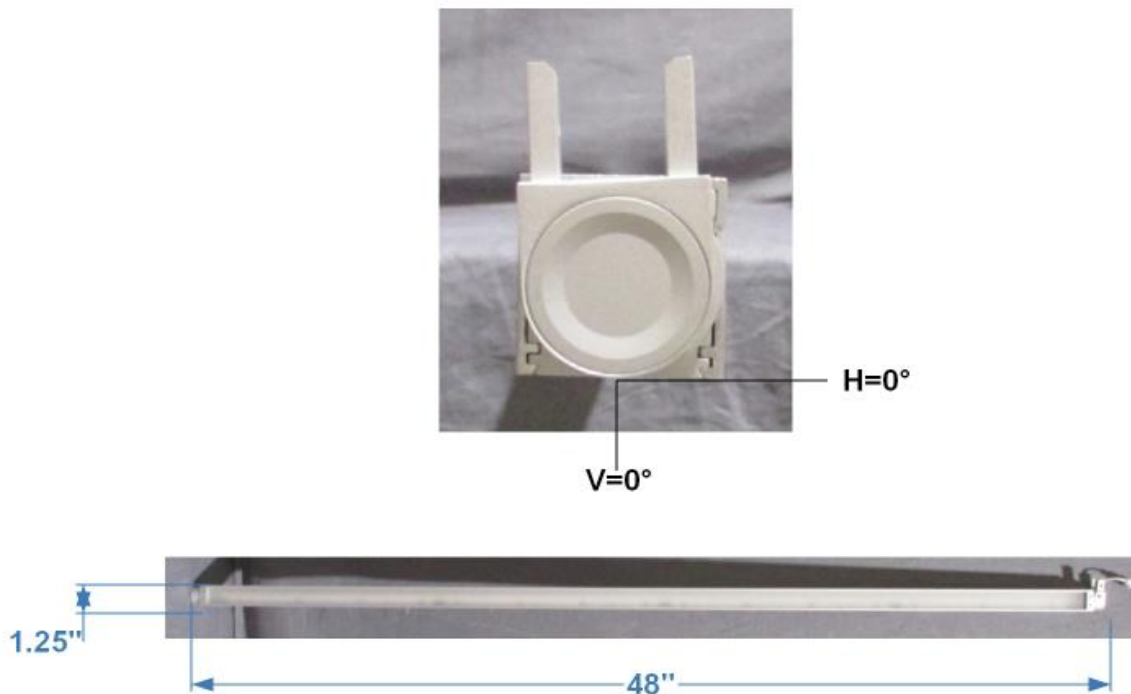
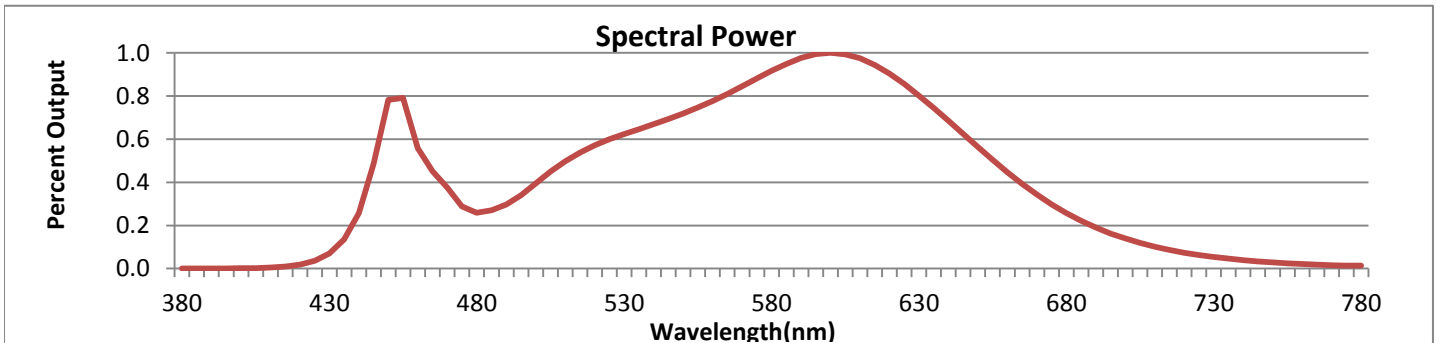


FIG. 1 LUMINAIRE

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



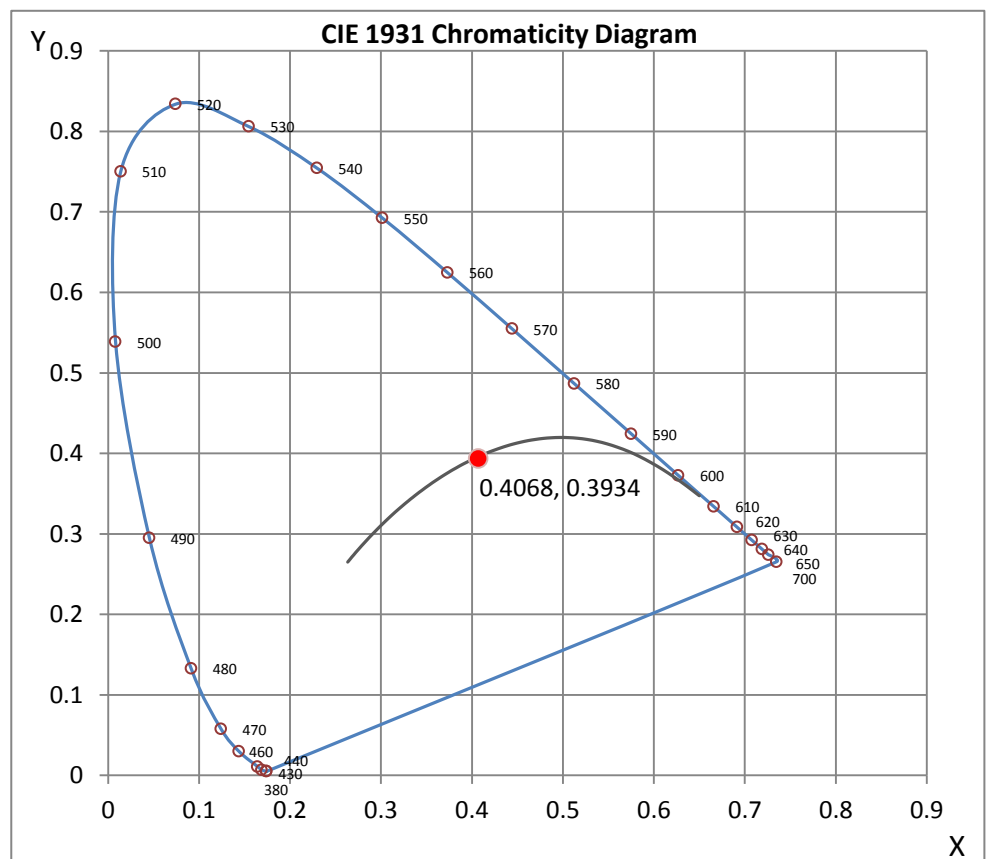
Wavelength	W/m ² nm	440	0.2576	510	0.4980	580	0.9173	650	0.5640	720	0.0739
380	0.0009	450	0.7831	520	0.5721	590	0.9772	660	0.4477	730	0.0536
390	0.0011	460	0.5586	530	0.6234	600	1.0000	670	0.3430	740	0.0392
400	0.0016	470	0.3756	540	0.6693	610	0.9748	680	0.2575	750	0.0288
410	0.0045	480	0.2594	550	0.7190	620	0.9039	690	0.1904	760	0.0212
420	0.0190	490	0.2979	560	0.7764	630	0.8019	700	0.1393	770	0.0158
430	0.0707	500	0.3955	570	0.8441	640	0.6863	710	0.1017	780	0.0136

CRI & CCT

x	0.4068
y	0.3934
u'	0.2356
v'	0.5126
CRI	83.90
CCT	3489
Duv	0.00084

R Values

R1	82.47
R2	91.04
R3	96.62
R4	82.00
R5	82.06
R6	87.72
R7	85.32
R8	63.70
R9	12.63
R10	78.46
R11	81.04
R12	64.47
R13	84.68
R14	98.30



*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.

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Test Report Released by:



Jeff Ahn
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Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031700403.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L031700403
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 3/23/2017
 [MANUFAC] VODE LIGHTING
 [LUMCAT] 107-BX-48-Z-SO-35-1-AL
 [LUMINAIRE] BOXRAIL LED, 48", 3500K, ZIPPER BOARD,
 [MORE] DIFFUSE LENS, STANDARD OUTPUT (700MA)
 [BALLASTCAT] MEAN WELL HLG-40H-36A(700mA)
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 25.15W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2354
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	94
Total Luminaire Watts	25.15
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.12
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.24
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.08 ft
Luminous Width (90-270)	3.85 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	23010	26911	30318
55	17288	21853	26236
65	12888	17184	22224
75	9848	13220	18886
85	7211	9615	18428

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031700403.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	1066	1066	1066	1066	1066	1066	1066	1066	1066	1066
5	1063	1062	1063	1062	1063	1063	1063	1064	1063	1064
10	1043	1043	1043	1043	1044	1044	1045	1045	1046	1046
15	1004	1003	1005	1005	1006	1007	1009	1010	1012	1013
20	947	947	947	949	950	954	956	959	961	964
25	871	871	872	874	877	881	886	890	896	900
30	784	785	787	790	794	800	806	813	820	827
35	681	682	685	689	695	702	710	719	729	738
40	573	574	577	582	589	598	608	620	631	643
45	466	468	471	477	484	494	505	518	531	545
50	369	370	373	379	387	396	408	420	435	448
55	284	285	288	293	300	309	320	332	345	359
60	213	214	217	221	227	235	244	254	266	278
65	156	156	158	162	166	172	179	188	198	208
70	109	110	111	113	117	121	126	133	140	148
75	73	73	74	75	77	80	83	87	92	98
80	43	43	44	44	45	46	48	50	53	57
85	18	18	19	19	19	20	20	21	22	24
90	0	0	0	0	0	0	0	0	0	0

Vert. 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	1066	1066	1066	1066	1066	1066	1066	1066	1066
5	1064	1064	1064	1063	1064	1065	1064	1065	1064
10	1047	1047	1048	1048	1048	1049	1049	1050	1050
15	1014	1016	1017	1018	1019	1020	1021	1021	1021
20	967	969	972	974	977	978	980	980	980
25	905	910	913	918	921	923	926	926	927
30	835	841	847	852	856	860	862	864	866
35	748	757	765	772	778	783	787	789	790
40	654	665	675	684	691	697	701	704	705
45	558	570	581	591	599	606	610	613	614
50	463	476	487	498	506	513	518	521	522
55	373	386	398	408	416	423	428	430	431
60	291	304	315	325	333	339	343	345	346
65	219	230	240	249	257	262	266	268	269
70	157	166	174	182	189	194	197	199	199
75	105	112	118	125	130	135	138	139	140
80	61	66	71	76	80	83	86	88	89
85	26	28	31	35	38	41	43	45	46
90	0	0	0	0	0	0	0	0	0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	385.95	N.A.	16.40
0-30	799.67	N.A.	34.00
0-40	1259.6	N.A.	53.50
0-60	2001.02	N.A.	85.00
0-80	2322.3	N.A.	98.60
0-90	2354.19	N.A.	100.00
10-90	2253.26	N.A.	95.70
20-40	873.66	N.A.	37.10
20-50	1292.56	N.A.	54.90
40-70	952.29	N.A.	40.50
60-80	321.28	N.A.	13.60
70-80	110.40	N.A.	4.70
80-90	31.89	N.A.	1.40
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	2354.19	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

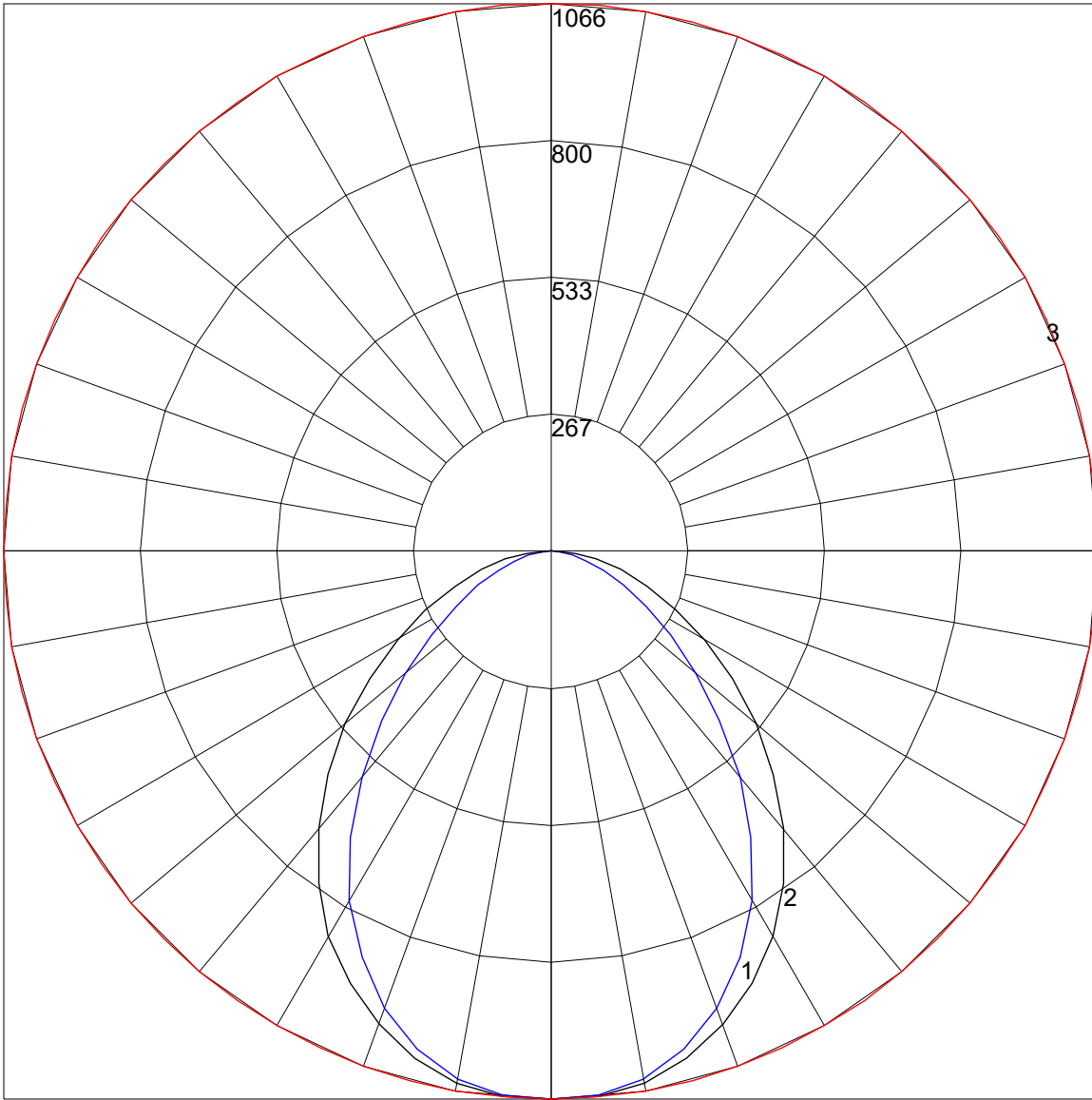
Zone	Lumens
0-10	100.93
10-20	285.02
20-30	413.72
30-40	459.94
40-50	418.90
50-60	322.52
60-70	210.87
70-80	110.40
80-90	31.89
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	75	70	90	81	74	69	79	73	68	76	71	67	73	69	65	63
4	85	74	66	60	83	73	65	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	50	48
6	73	61	52	46	71	60	52	46	58	51	46	56	50	45	55	49	45	43
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38
8	64	51	43	37	62	50	42	37	49	42	37	48	41	37	47	41	36	35
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	31
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	34	30	29

POLAR GRAPH



Maximum Candela = 1066 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.)