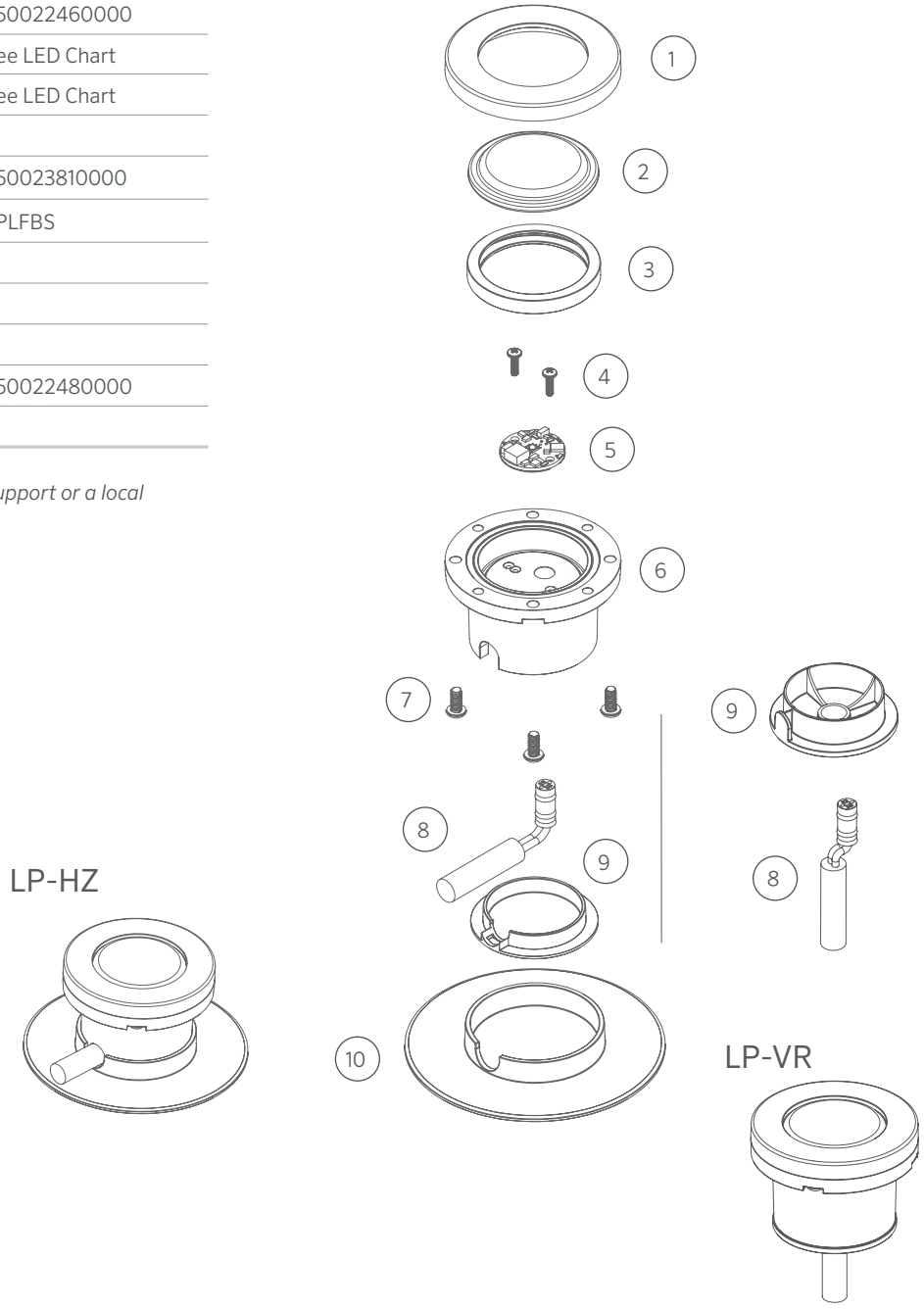
Replacement Parts

ITEM	DESCRIPTION		PART #
1	Shroud		250022440000
2	Lens		250022470000
3	Gasket		250022460000
4	Screw		See LED Chart
5	LED Board		See LED Chart
6	Housing, Brass		†
7	Screw, #8-32 x ⅜"		250023810000
1-3, 7	Lens Cap Assembly		LPLFBS
8	Socket, 30' (9 m)		†
9	Cover	Horizontal (HZ)	†
		Vertical (VR)	†
10	Stand		250022480000
NS	Torx Key, T15		†

NS = Not shown
† This part is not serviceable. Contact Customer Support or a local distributor to order a new product.



2nd Gen LED Chart

DESCRIPTION	PART #
LED Replacement Kits (Board, Reflector, Screws, Beam Angle Lenses)	
1 LED Up Light Kit (2700K)	KIT1LEDRDW
3 LED Up Light Kit (2700K)	KIT3LEDRDW
ZD 1 LED Up Light Kit (2700K)	KITZD1LEDRDW
ZD 3 LED Up Light Kit (2700K)	KITZD3LEDRDW
ZDC 3 LED Kit, Medium	ZDCKITM
Reflectors	
1 LED Reflector	770000
3 LED Reflector	770700
ZDC 3 LED Reflector, Medium	250022050000
Screws	
1 LED/3 LED Screw, #4-40 x ⅜" (Qty Req: 2)	762400

Beam Angle Lens Chart

DESCRIPTION	PART #
Round Beam Angle Lenses	
1 LED Spot Lens (20°)	770600
1 LED Flood Lens (35°)	1LEDFLLENS
1 LED Wide Flood Lens (60°)	1LEDWFLLENS
3 LED Spot Lens (20°)	771300
3 LED Flood Lens (35°)	3LEDFLLENS
3 LED Wide Flood Lens (60°)	3LEDWFLLENS

1st Gen LED Chart

DESCRIPTION	PART #
LED Replacement Kits (Board, Color Filters, Reflector, Screws)	
1 LED Up Light Kit (3900K)	1LEDULKIT
3 LED Up Light Kit (3900K)	3LEDULKIT
ZD 1 LED Up Light Kit (3900K)	ZD1LEDULKIT
ZD 3 LED Up Light Kit (3900K)	ZD3LEDULKIT
ZD 3 LED T Up Light Kit (TURTLE)	ZD3LEDTKIT
Color Filter Lenses Only	
1 LED Color Filter, Amber	770100
1 LED Color Filter, Blue	770101
1 LED Color Filter, Green	770102
3 LED Color Filter, Amber	770800
3 LED Color Filter, Blue	770801
3 LED Color Filter, Green	770802
Optics Kits (Color Filters, Reflector, Screws)	
1 LED Optics Kit	1LEDOPTICSKIT
3 LED Optics Kit	3LEDOPTICSKIT

LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
p. 714.282.2270
f. 714.676.5558

Report No: L041604903
Date: 4/18/2016

NVLAP LAB CODE 200927-0

Report No: **L041604903**

Report Prepared For: Hunter Industries
1785 La Costa Meadows Dr, San Marcos, CA 92078

Model Number: **LP-ZDC-BS**

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. Catalog number is LP-ZDC-BS. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 4/13/16

Date of Tests: 4/14/16 - 4/18/16

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	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
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.

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Test Summary	
Manufacturer:	Hunter Industries
Model Number:	LP-ZDC-BS
Driver Model Number:	N/A
Total Lumens:	146.66
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.29
Input Power (W):	3.18
Input Power Factor:	0.92
Current ATHD @ 12V(%):	41%
Current ATHD @ 277V(%):	N/A
Efficacy:	46
Color Rendering Index (CRI):	81
Correlated Color Temperature (K):	3908
Chromaticity Coordinate x:	0.3871
Chromaticity Coordinate y:	0.3879
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	0:55
Off State Power(W):	0.00

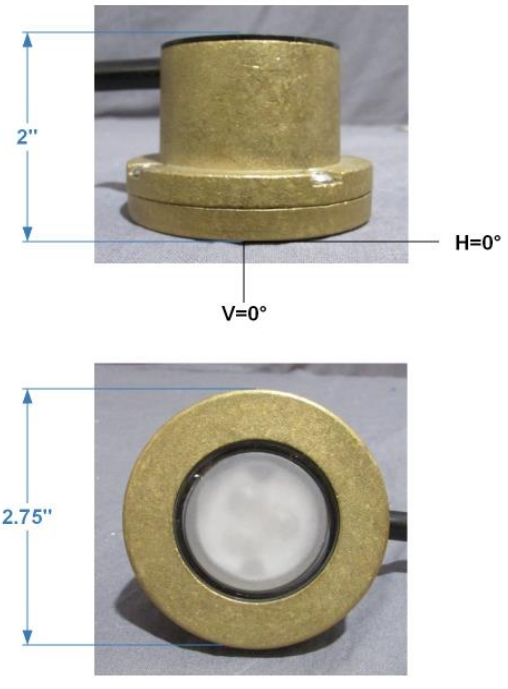


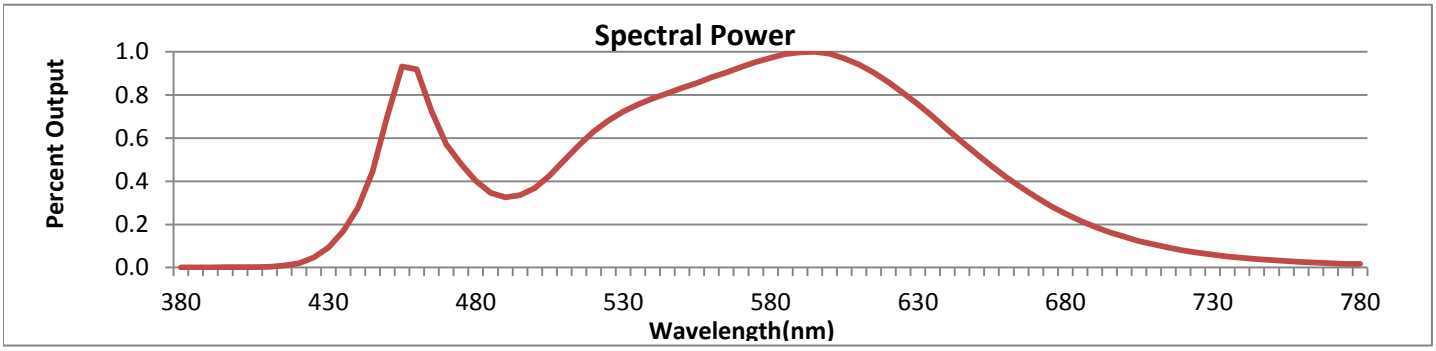
FIG. 1 LUMINAIRE

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

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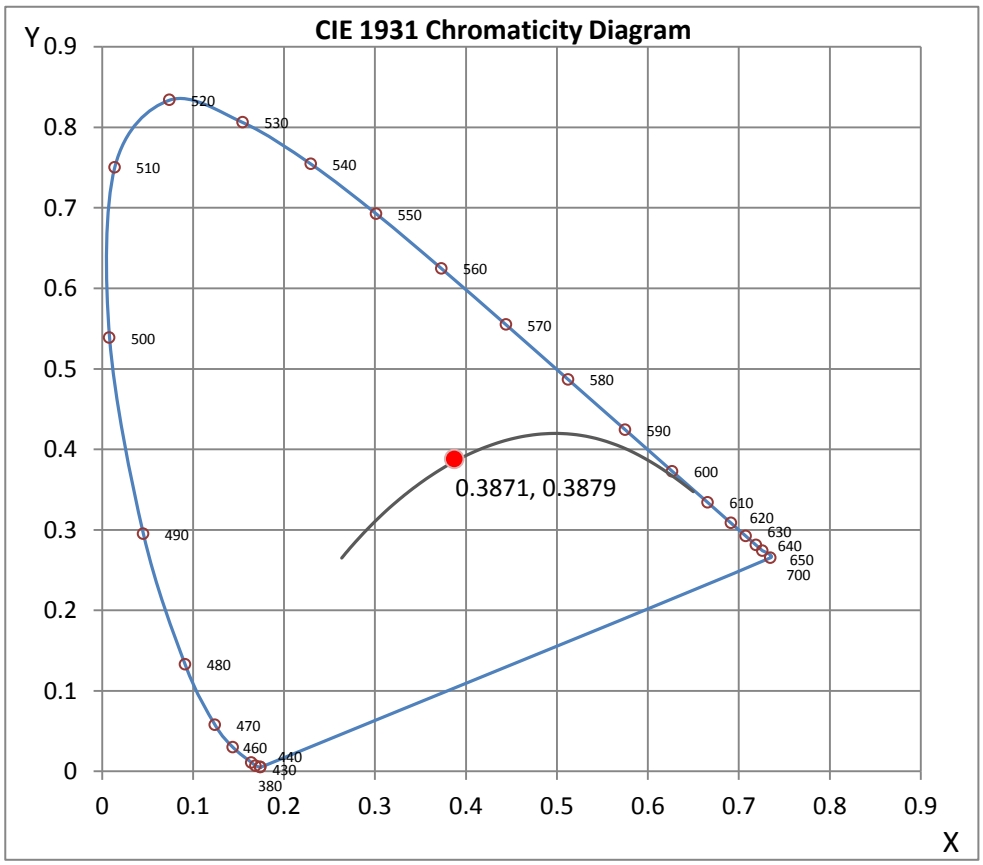
Wavelength	W/m²nm	440	0.0005	510	0.0010	580	0.0019	650	0.0010	720	0.0002
380	0.0000	450	0.0014	520	0.0012	590	0.0019	660	0.0008	730	0.0001
390	0.0000	460	0.0018	530	0.0014	600	0.0019	670	0.0006	740	0.0001
400	0.0000	470	0.0011	540	0.0015	610	0.0018	680	0.0005	750	0.0001
410	0.0000	480	0.0008	550	0.0016	620	0.0017	690	0.0004	760	0.0001
420	0.0000	490	0.0006	560	0.0017	630	0.0015	700	0.0003	770	0.0000
430	0.0002	500	0.0007	570	0.0018	640	0.0012	710	0.0002	780	0.0000

CRI & CCT

x	0.3871
y	0.3879
u'	0.2250
v'	0.5074
CRI	81.20
CCT	3908
Duv	0.00325

R Values

R1	79.28
R2	89.22
R3	95.22
R4	76.89
R5	77.63
R6	83.75
R7	85.39
R8	62.36
R9	4.93
R10	72.44
R11	73.35
R12	54.88
R13	81.91
R14	97.13



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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 Released by:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 8*

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

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Photometric Test Report

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L041604903.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L041604903
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 4/18/2016
[MANUFAC] HUNTER INDUSTRIES
[LUMCAT] LP-ZDC-BS
[LUMINAIRE] ZDC underwater light, Natural Brass
[BALLASTCAT] N/A
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12VAC, 3.18W
[TEST PROCEDURE] IESNA:LM-79-08

Note: Candela values converted from Type-C to Type-B

CHARACTERISTICS

NEMA Type	6 H x 6 V
Maximum Candela	124.47
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	55.0
Vertical Beam Angle (50%)	55.0
Horizontal Field Angle (10%)	118.7
Vertical Field Angle (10%)	118.7
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	61
Beam Efficiency	N.A.
Field Lumens	129
Field Efficiency	N.A.
Spill Lumens	18
Luminaire Lumens	147
Total Efficiency	N.A.
Total Luminaire Watts	3.18
Ballast Factor	1.00

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Results derived from content of manufacturers photometric file.

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L041604903.IES

AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	.92	85	.92
75	4.17	75	4.17
65	8.74	65	8.74
55	15.28	55	15.28
47.5	22.85	47.5	22.85
42.5	29.69	42.5	29.69
37.5	38.5	37.5	38.5
33	48.17	33	48.17
29	58.07	29	58.07
25.5	67.86	25.5	67.86
22.5	76.9	22.5	76.9
19.5	86.03	19.5	86.03
17	93.47	17	93.47
15	99.43	15	99.43
13	104.55	13	104.55
11	109.67	11	109.67
9	114.04	9	114.04
7	117.67	7	117.67
5	121.3	5	121.3
3	122.57	3	122.57
1	123.84	1	123.84
0	124.47	0	124.47
-1	123.84	-1	123.84
-3	122.57	-3	122.57
-5	121.3	-5	121.3
-7	117.67	-7	117.67
-9	114.04	-9	114.04
-11	109.67	-11	109.67
-13	104.55	-13	104.55
-15	99.43	-15	99.43
-17	93.47	-17	93.47
-19.5	86.03	-19.5	86.03
-22.5	76.9	-22.5	76.9
-25.5	67.86	-25.5	67.86
-29	58.07	-29	58.07
-33	48.17	-33	48.17
-37.5	38.5	-37.5	38.5
-42.5	29.69	-42.5	29.69
-47.5	22.85	-47.5	22.85
-55	15.28	-55	15.28
-65	8.74	-65	8.74
-75	4.17	-75	4.17
-85	.92	-85	.92
-90	0	-90	0

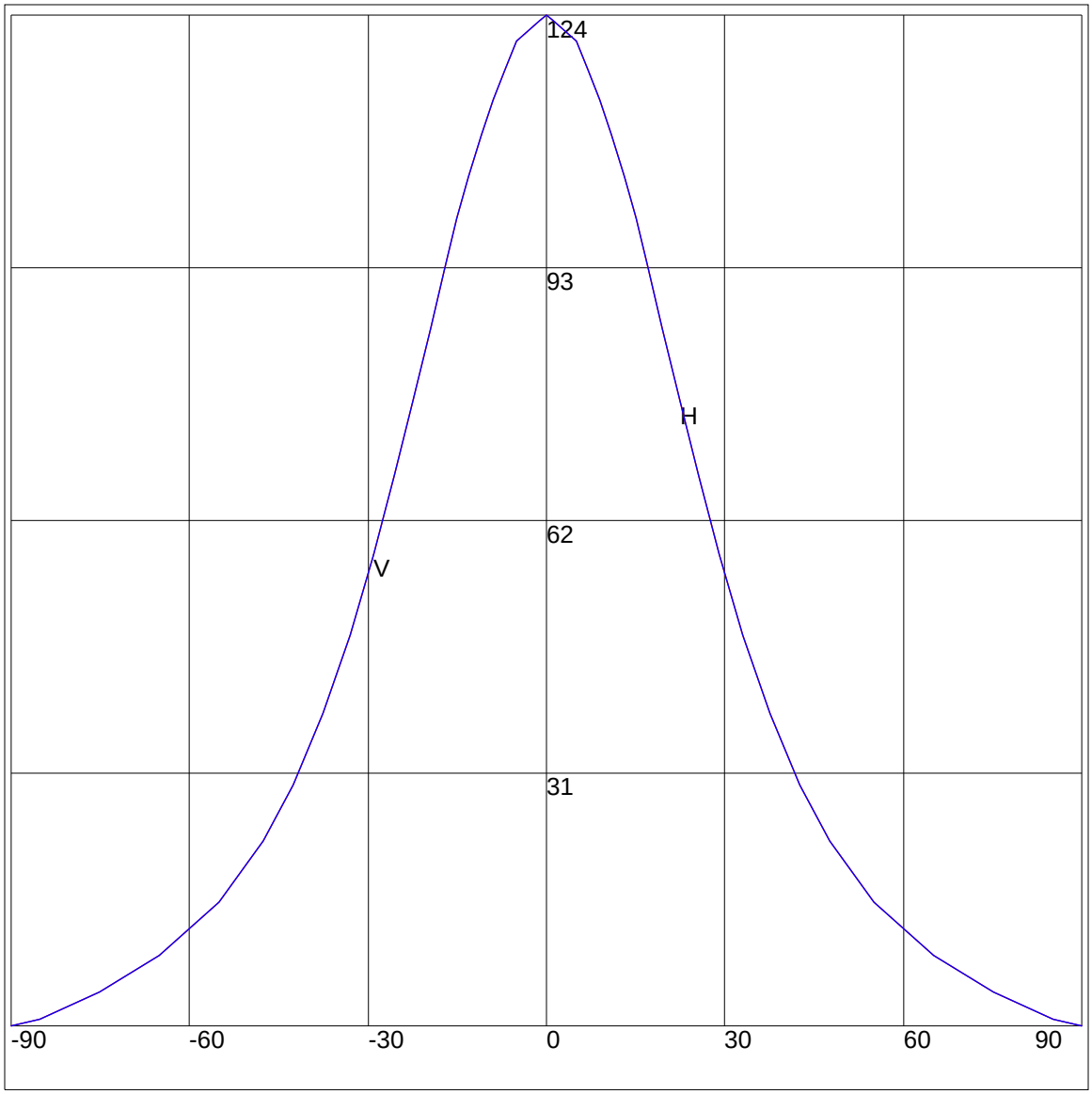
ZONAL LUMEN SUMMARY

Zone	%
0-20	26.6
0-30	48.3
0-40	66.9
0-60	90.2
0-80	99.2
0-90	100
10-90	92.3
20-40	40.4
20-50	54.2
40-70	29.2
60-80	9
70-80	3.1
80-90	0.8
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

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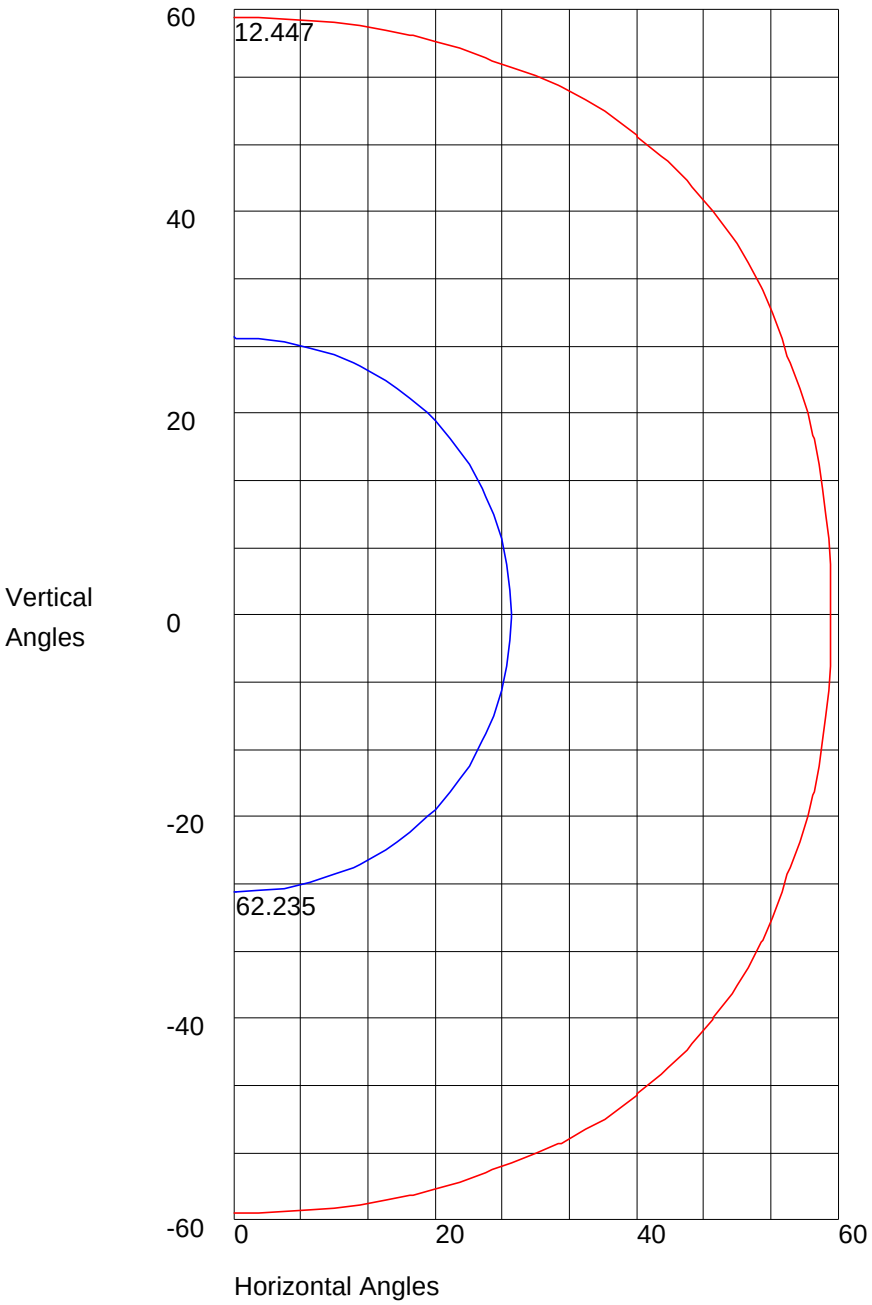
AXIAL CANDELA DISPLAY



Maximum Candela = 124.47 Located At Horizontal Angle = 0, Vertical Angle = 0
H - Horizontal Axial Candela
V - Vertical Axial Candela

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L041604903.IES

ISOCANDELA CURVES



Maximum Candela = 124.47 Located At Horizontal Angle = 0, Vertical Angle = 0
50% Maximum Candela = 62.235
10% Maximum Candela = 12.447

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