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1075 W Lambert Rd Suite B  
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## Photometric Test Report

Relevant Standards  
IES LM-79-2008  
ANSI C78.377-2011, ANSI C82.77-2002  
CIE 13.3-1995, CIE 15-2004, IES TM-30-15

Prepared For  
**ELEMENTAL LED INC**

Wes Buck  
1195 Park Ave Ste 211  
Emeryville, CA 94608-3655  
United States

Catalog Number  
**VALENT HD DI-12V-2VA35-90\*\***

Order Number  
11133741  
Test Number  
1197429

Test Date

2016-01-21

Prepared By

Tony Rubio, Technician

Approved By

Eric Gaudreau, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.  
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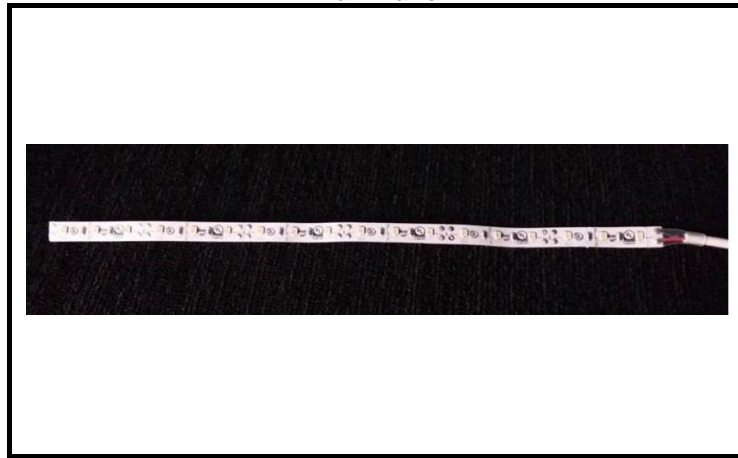
Laboratory results may not be representative of field performance  
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the  $4\pi$  geometry method.  
Absorption correction was employed for Sphere measurement



**Luminaire Description:** White LED strip  
**Lamp:** 18 White LEDs  
**Mounting:** Surface

**Luminaire**



**Luminaire Characteristics**  
Luminous Length: 12.00 in.  
Luminous Width: 0.5000 in.

### Summary of Results

#### Integrating Sphere

Luminous Flux: 330 Lumens  
Efficacy: 75.8 lm/w  
CCT: 3445 K  
CRI (Ra): 93.2

#### Distribution

Total Luminaire Output: 332.7 Lumens  
Luminaire Efficacy: 74.7 lm/w  
Maximum Candela: 112 Candela

#### Electrical Data at 12 VDC

Test Temperature: 24.8 °C  
Voltage: 12.01 VDC  
Current: 0.3620 A  
Power: 4.356 W



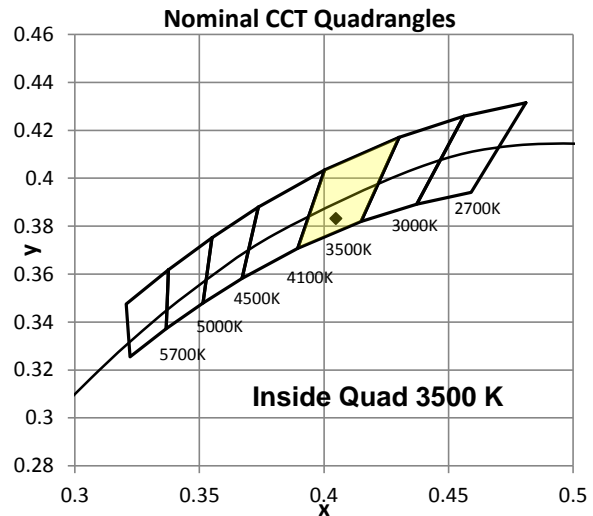
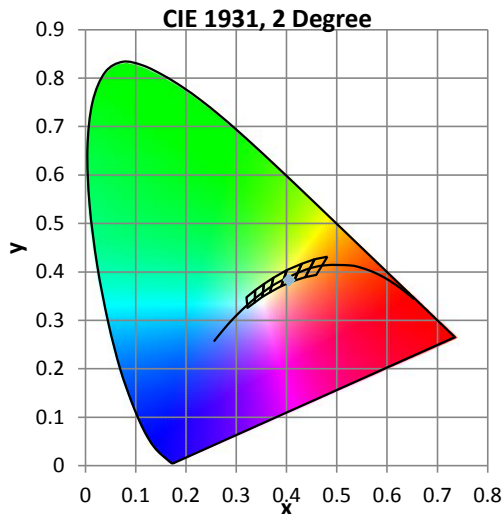
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	12.01 VAC	0.3620 A	4.356 W	N/A	N/A	N/A

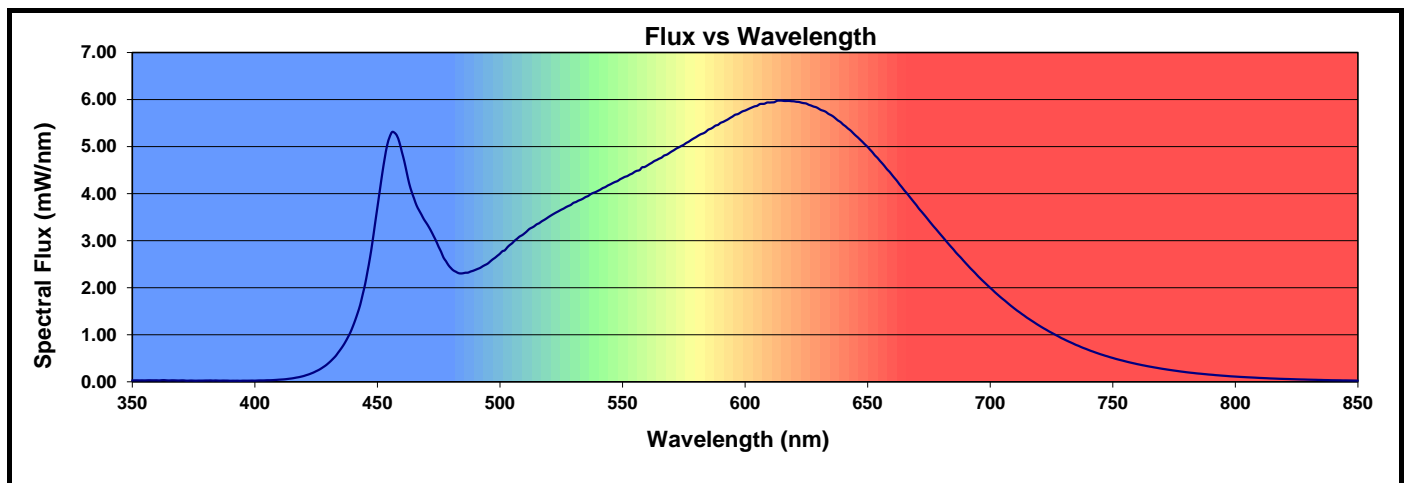
### Summary of Results

<b>Total Output:</b>	330 Lumens	<b>Chromaticity (x):</b>	0.4048
<b>Efficacy:</b>	75.8 lm/w	<b>Chromaticity (y):</b>	0.3831
<b>CCT:</b>	3445 K	<b>Chromaticity (u'):</b>	0.2386
<b>CRI (Ra):</b>	93.2	<b>Chromaticity (v'):</b>	0.5079
<b>CRI (R9):</b>	67.4	<b>TM-30 R<sub>f</sub>:</b>	88.2
<b>Peak Wavelength:</b>	614.5 nm	<b>TM-30 R<sub>g</sub>:</b>	97.0
<b>Dominant Wavelength:</b>	582.6 nm	<b>Duv:</b>	-0.0036
<b>S/P Ratio:</b>	1.652		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
93.2	95.0	99.1	96.7	91.1	93.8	95.3	90.5	84.1	67.4	97.4	91.6	76.4	97.0	99.3





## Distribution - Goniophotometer

### Distribution Test Conditions

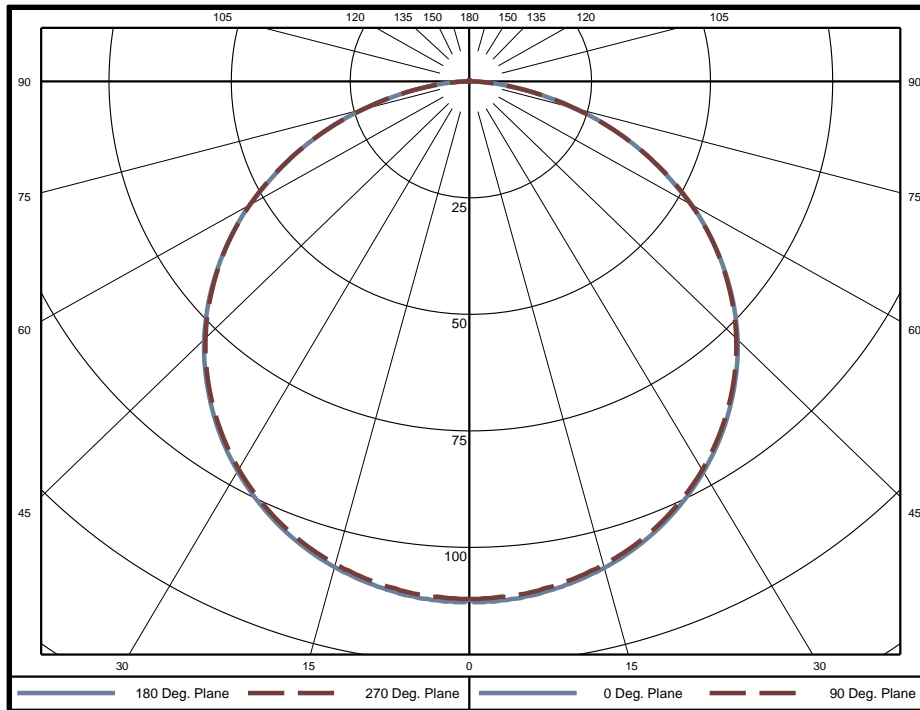
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	12.02 VDC	0.9704 A	4.455 W	N/A	N/A	N/A

### Summary of Results

**Spacing Criteria**  
 0-180: 1.29  
 90-270: 1.29

**Total Lumen Output:** 332.7 Lumens  
**Luminaire Efficacy:** 74.7 lm/w  
**Maximum Candela:** 112 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	2.65	0.8%	60-65	23.27	7.0%	120-125	0	0.0%
5-10	7.87	2.4%	65-70	19.28	5.8%	125-130	0	0.0%
10-15	12.85	3.9%	70-75	14.65	4.4%	130-135	0	0.0%
15-20	17.46	5.2%	75-80	9.70	2.9%	135-140	0	0.0%
20-25	21.52	6.5%	80-85	5.02	1.5%	140-145	0	0.0%
25-30	24.91	7.5%	85-90	1.61	0.5%	145-150	0	0.0%
30-35	27.53	8.3%	90-95	0	0.0%	150-155	0	0.0%
35-40	29.28	8.8%	95-100	0	0.0%	155-160	0	0.0%
40-45	30.10	9.0%	100-105	0	0.0%	160-165	0	0.0%
45-50	29.90	9.0%	105-110	0	0.0%	165-170	0	0.0%
50-55	28.68	8.6%	110-115	0	0.0%	170-175	0	0.0%
55-60	26.48	8.0%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	144	43.3%
0-60	259	77.9%
0-90	333	100.0%
90-180	0	0.0%



**Candela Tabulation**  
Horizontal Angle (Degrees)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0	111.0
5	111.4	110.4	110.9	110.4	110.7	110.4	110.9	110.4	111.4	110.4	110.9	110.4	110.7	110.4	110.9	110.4
10	110.1	109.1	109.6	109.2	109.4	109.2	109.6	109.1	110.1	109.1	109.6	109.2	109.4	109.2	109.6	109.1
15	108.0	107.0	107.6	107.1	107.3	107.1	107.6	107.0	108.0	107.0	107.6	107.1	107.3	107.1	107.6	107.0
20	105.1	104.2	104.6	104.2	104.5	104.2	104.6	104.2	105.1	104.2	104.6	104.2	104.5	104.2	104.6	104.2
25	101.3	100.4	100.9	100.4	100.7	100.4	100.9	100.4	101.3	100.4	100.9	100.4	100.7	100.4	100.9	100.4
30	96.7	95.9	96.3	95.9	96.2	95.9	96.3	95.9	96.7	95.9	96.3	95.9	96.2	95.9	96.3	95.9
35	91.3	90.6	90.9	90.6	90.8	90.6	90.9	90.6	91.3	90.6	90.9	90.6	90.8	90.6	90.9	90.6
40	85.1	84.5	84.8	84.5	84.7	84.5	84.8	84.5	85.1	84.5	84.8	84.5	84.7	84.5	84.8	84.5
45	78.3	77.7	77.9	77.7	77.9	77.7	77.9	77.7	78.3	77.7	77.9	77.7	77.9	77.7	77.9	77.7
50	70.5	69.9	70.1	70.0	70.2	70.0	70.1	69.9	70.5	69.9	70.1	70.0	70.2	70.0	70.1	69.9
55	62.1	61.7	61.8	61.7	61.9	61.7	61.8	61.7	62.1	61.7	61.8	61.7	61.9	61.7	61.8	61.7
60	52.9	52.5	52.8	52.7	52.9	52.7	52.8	52.5	52.9	52.5	52.8	52.7	52.9	52.7	52.8	52.5
65	43.0	42.9	43.1	43.1	43.2	43.1	43.1	42.9	43.0	42.9	43.1	43.1	43.2	43.1	43.1	42.9
70	33.1	33.0	33.2	33.1	33.1	33.1	33.2	33.0	33.1	33.0	33.2	33.1	33.1	33.1	33.2	33.0
75	22.6	23.1	23.1	23.0	22.9	23.0	23.1	23.1	22.6	23.1	23.1	23.0	22.9	23.0	23.1	23.1
80	13.2	13.6	13.5	13.4	13.3	13.4	13.5	13.6	13.2	13.6	13.5	13.4	13.3	13.4	13.5	13.6
85	5.6	5.8	5.6	5.3	5.2	5.3	5.6	5.8	5.6	5.8	5.6	5.3	5.2	5.3	5.6	5.8
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Average Luminance (cd/m<sup>2</sup>)**  
Horizontal Angle (Degrees)

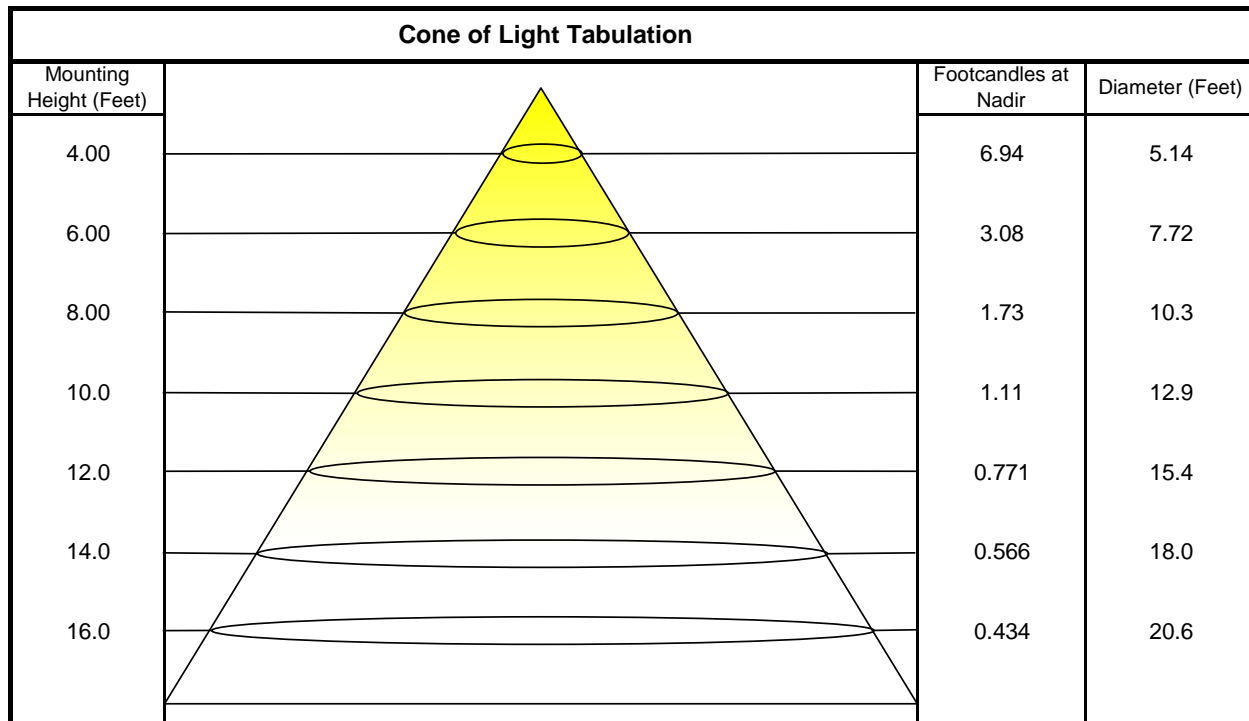
	0	45	90
0	28680	28680	28680
45	28610	28450	28460
55	27950	27830	27890
65	26260	26330	26380
75	22530	23100	22870
85	16620	16470	15450



### Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	396	396	396	396	387	387	387	387	370	370	370	354	354	354	340	340	340	333
1	361	345	330	317	352	337	324	312	323	312	302	310	301	293	298	291	284	277
2	328	300	276	257	319	293	272	254	281	263	248	270	255	242	260	248	237	229
3	298	262	235	212	290	257	231	210	247	225	207	238	219	203	229	213	200	192
4	272	232	202	179	265	227	199	178	219	195	175	211	190	173	204	186	171	163
5	250	207	176	154	243	203	174	153	196	170	151	189	167	149	183	163	148	141
6	231	186	155	134	224	183	154	133	176	151	132	171	148	131	165	145	129	123
7	214	168	139	118	208	165	137	117	160	135	116	155	133	116	151	130	115	108
8	199	153	125	105	194	151	123	104	146	122	104	142	120	103	138	118	102	96
9	186	140	113	94	181	138	112	94	135	110	93	131	109	93	128	107	92	86
10	174	129	103	85	170	128	102	85	124	101	85	121	99	84	118	98	84	78

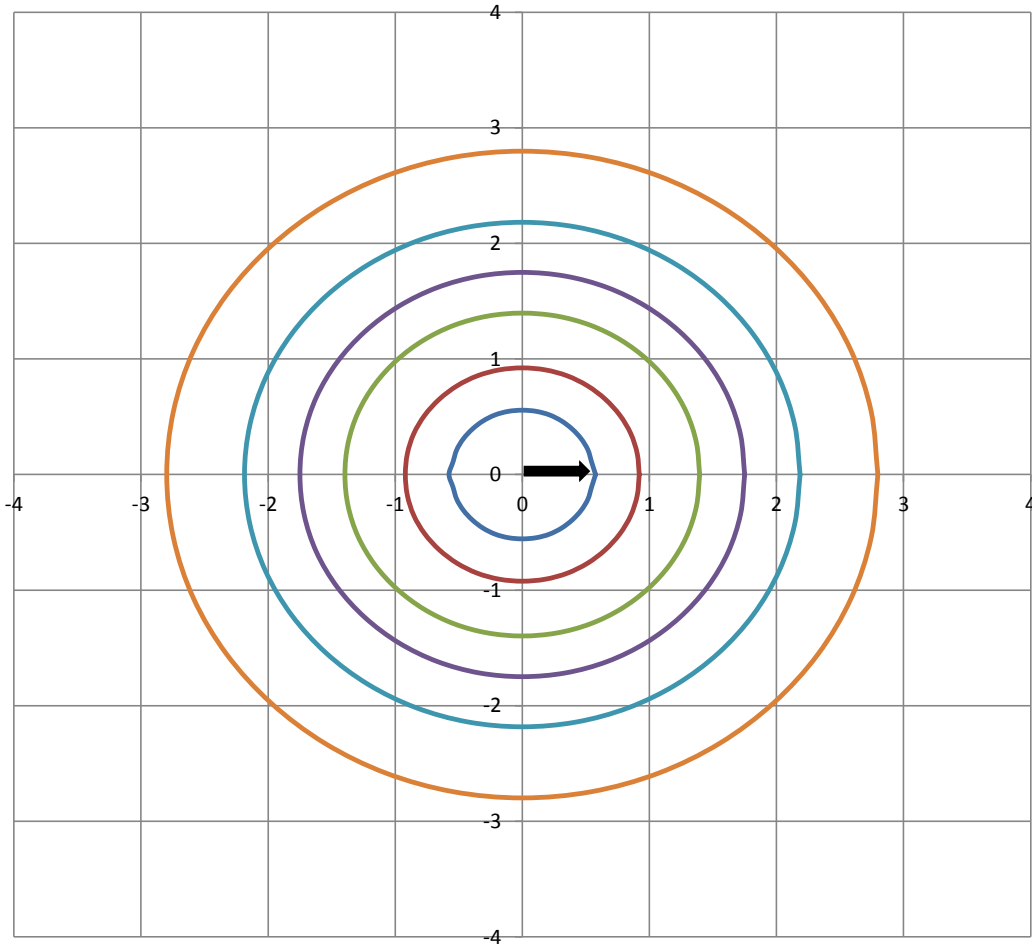
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	111.0 Candela
Central Cone Intensity:	111 Candela
Beam Flux:	251.5 Lumens
Beam Angle (0-180):	117.3 Degrees
Beam Angle (90-270):	117.2 Degrees
Field Angle (0-180):	162.4 Degrees
Field Angle (90-270):	162.4 Degrees





# ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

