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## Photometric Test Report

Relevant Standards  
IES LM-79-2008  
ANSI C82.77-2002

Prepared For  
**Express Imaging Systems LLC dba Evluma**

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Catalog Number  
**OMNI-40-4K-ME**

Order Number  
11225212  
Test Number  
1234532

Revised Date  
2016-04-18  
Test Date

2016-04-11

Prepared By

A handwritten signature in black ink, appearing to read 'Tony Rubio'.

Tony Rubio, Technician

Approved By

A handwritten signature in black ink, appearing to read 'Eric M. Gaudreau'.

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



**Lamp Description:** Circular white plastic lamp with rubber frosted lens  
**Lamp:** 96 White LEDs  
**Mounting:** VBD  
**Ballast/Driver:** Internal

Lamp



**Lamp Characteristics**

Luminous Diameter: 3.50 in.  
Luminous Height: 1.500 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 4999 Lumens  
Efficacy: 122.7 lm/w  
CCT: 3994 K  
CRI (Ra): 83.0

**Distribution**

Total Lamp Output: 4844 Lumens  
Lamp Efficacy: 119 lm/w  
Maximum Candela: 532 Candela

**Electrical Data at 120 VAC**

Test Temperature: 25.3 °C  
Voltage: 120.1 VAC  
Current: 0.3422 A  
Power: 40.74 W  
Power Factor: 0.991  
Frequency: 60 Hz  
Current THD: 13.1 %



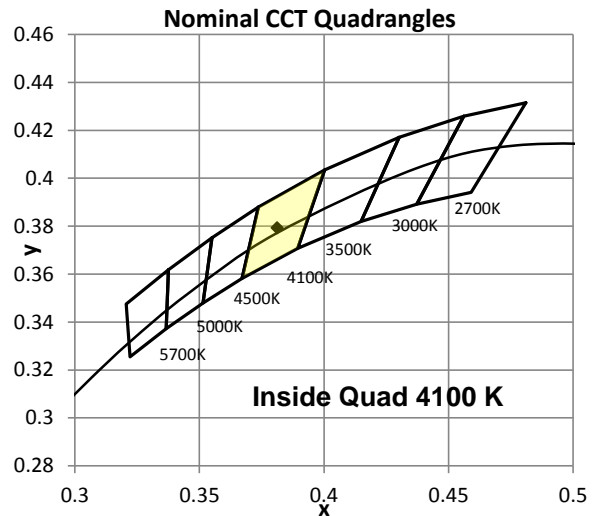
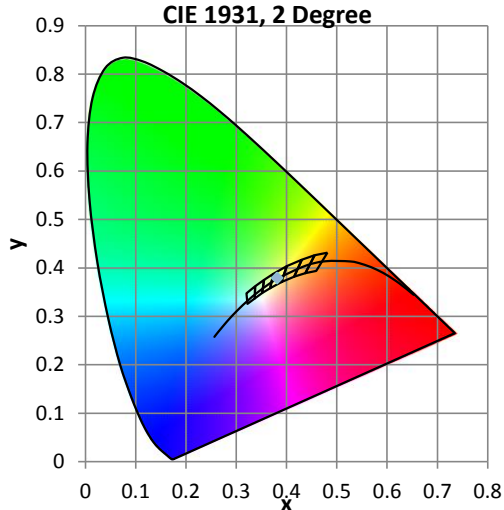
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.3 °C	120.1 VAC	0.3422 A	40.74 W	0.991	60 Hz	13.1 %

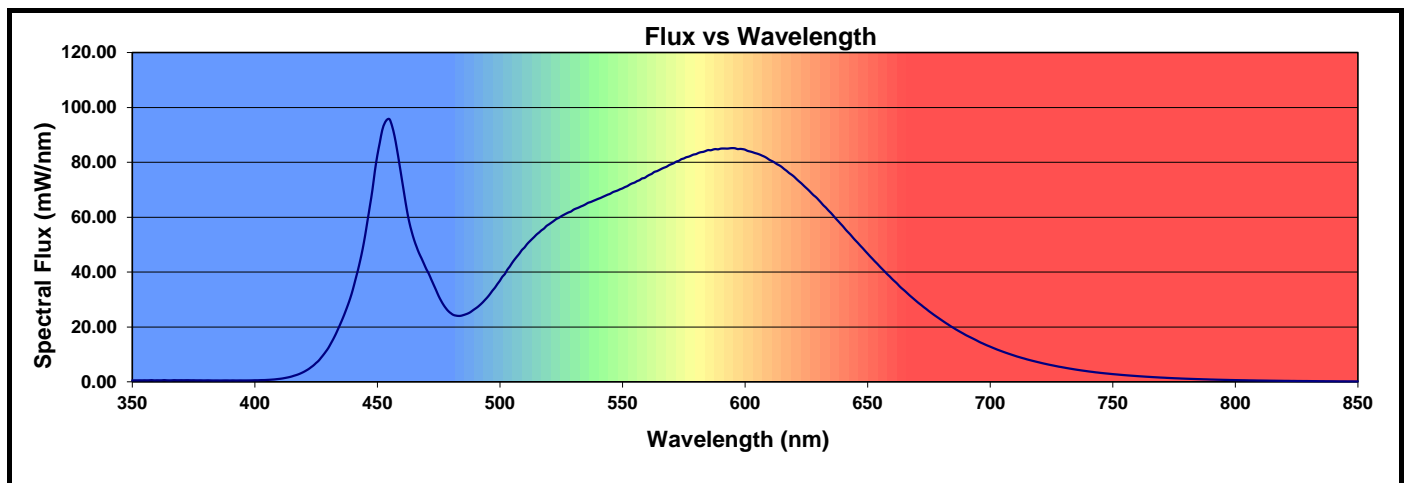
### Summary of Results

<b>Total Output:</b>	4999 Lumens	<b>Chromaticity (x):</b>	0.3812
<b>Efficacy:</b>	122.7 lm/w	<b>Chromaticity (y):</b>	0.3792
<b>CCT:</b>	3994 K	<b>Chromaticity (u'):</b>	0.2247
<b>CRI (Ra):</b>	83.0	<b>Chromaticity (v'):</b>	0.5028
<b>CRI (R9):</b>	12.9	<b>TM-30 R<sub>f</sub>:</b>	81.6
<b>Peak Wavelength:</b>	454.3 nm	<b>TM-30 R<sub>g</sub>:</b>	94.8
<b>Dominant Wavelength:</b>	578.6 nm	<b>Duv:</b>	0.0009
<b>S/P Ratio:</b>	1.679		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.0	81.4	89.2	94.2	81.1	80.8	84.2	86.9	66.2	12.9	73.4	79.2	58.4	83.3	96.8





## Distribution - Goniophotometer

### Distribution Test Conditions

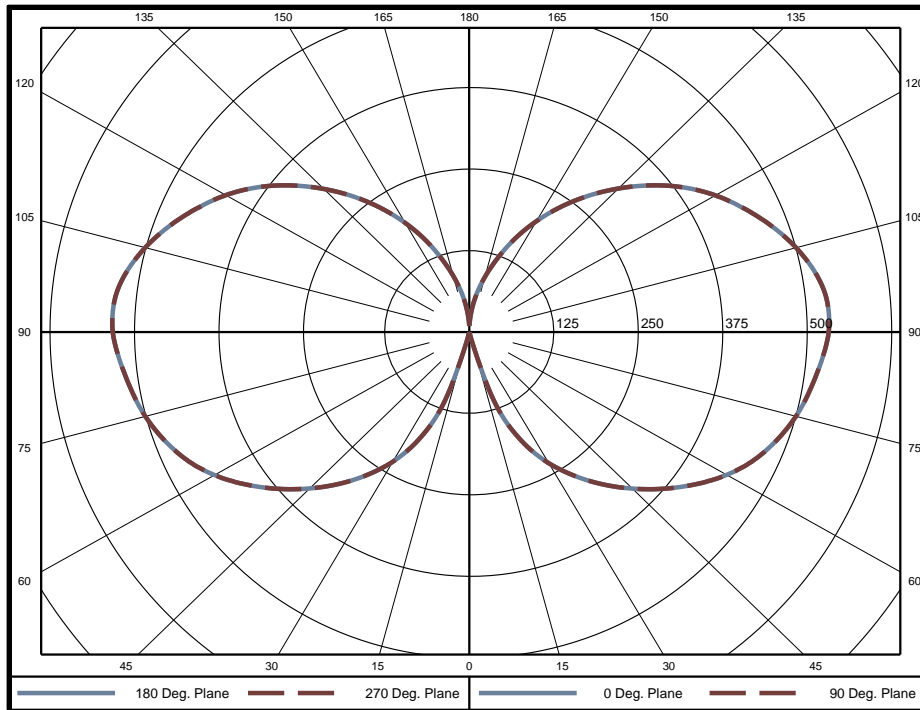
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	120.0 VAC	0.3422 A	40.71 W	0.991	60 Hz	13.1 %

### Summary of Results

**Spacing Criteria**  
 0-180: 13.54  
 90-270: 13.54

**Total Lumen Output:** 4844 Lumens  
**Lamp Efficacy:** 119.0 lm/w  
**Maximum Candela:** 532 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	0.1	0.0%	60-65	219.8	4.5%	120-125	186.4	3.8%
5-10	0.2	0.0%	65-70	240.2	5.0%	125-130	160.3	3.3%
10-15	0.6	0.0%	70-75	257.1	5.3%	130-135	133.7	2.8%
15-20	12.3	0.3%	75-80	270.5	5.6%	135-140	108.1	2.2%
20-25	33.6	0.7%	80-85	280.5	5.8%	140-145	84.5	1.7%
25-30	53.2	1.1%	85-90	288.3	6.0%	145-150	63.1	1.3%
30-35	73.9	1.5%	90-95	290.9	6.0%	150-155	44.6	0.9%
35-40	95.9	2.0%	95-100	285.7	5.9%	155-160	28.9	0.6%
40-45	119.5	2.5%	100-105	272.8	5.6%	160-165	16.9	0.3%
45-50	144.4	3.0%	105-110	254.9	5.3%	165-170	8.5	0.2%
50-55	170.1	3.5%	110-115	233.8	4.8%	170-175	3.1	0.1%
55-60	195.8	4.0%	115-120	210.9	4.4%	175-180	0.5	0.0%

Zone	Lumens	% of Luminaire
0-40	270	5.6%
0-60	900	18.6%
0-90	2456	50.7%
90-180	2388	49.3%



**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	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
10	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
15	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
20	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6	128.6
25	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5	186.5
30	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3	231.3
35	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9	268.9
40	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9	304.9
45	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9	339.9
50	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3	374.3
55	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5	407.5
60	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6	438.6
65	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1	464.1
70	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7	483.7
75	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3	499.3
80	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9	510.9
85	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7	521.7
90	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5	530.5
95	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4	530.4
100	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1	519.1
105	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4	499.4
110	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9	474.9
115	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9	447.9
120	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1	419.1
125	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4
130	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8
135	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1	311.1
140	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3	272.3
145	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4	233.4
150	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7	194.7
155	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4	156.4
160	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6	118.6
165	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8	85.8
170	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4
175	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8
180	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6

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

	0	45	90
0	518	518	518
45	75330	75330	75330
55	91420	91420	91420
65	108800	108800	108800
75	125800	125800	125800
85	145200	145200	145200



### 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	5198	5198	5198	5198	4800	4800	4800	4800	4056	4056	4056	3375	3375	3375	2750	2750	2750	2456
1	4450	4115	3814	3543	4062	3767	3501	3260	3116	2910	2720	2518	2360	2214	1967	1848	1737	1464
2	3935	3430	3012	2661	3573	3130	2759	2444	2565	2275	2025	2045	1822	1626	1563	1394	1244	999
3	3521	2920	2454	2083	3187	2659	2244	1910	2168	1842	1573	1714	1461	1248	1293	1099	934	715
4	3178	2523	2044	1678	2873	2297	1868	1536	1869	1528	1259	1471	1205	989	1102	897	727	533
5	2888	2207	1731	1379	2610	2009	1581	1261	1634	1292	1030	1285	1015	803	959	750	582	409
6	2639	1949	1486	1154	2386	1775	1358	1054	1445	1109	858	1137	870	665	848	640	476	322
7	2425	1737	1291	979	2194	1583	1180	894	1291	964	726	1017	755	560	760	554	397	258
8	2239	1560	1133	839	2027	1423	1035	766	1162	846	620	917	663	477	687	486	336	210
9	2075	1410	1002	727	1882	1288	917	663	1054	750	536	834	588	411	627	431	287	174
10	1931	1282	893	634	1753	1172	817	578	962	669	467	763	525	357	576	386	249	145

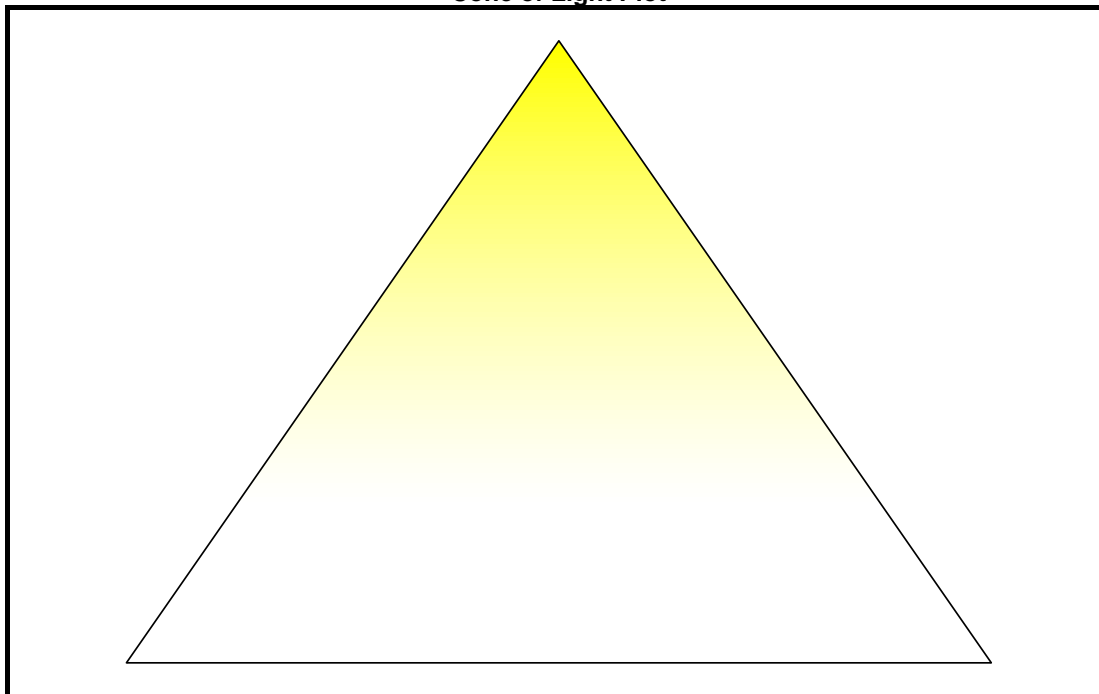
#### Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	0.201	54.1
6.00	0.0894	81.2
8.00	0.0503	108
10.0	0.0322	135
12.0	0.0223	162
14.0	0.0164	190
16.0	0.0126	217

#### Beam and Field Information

CIE Type:	Direct/Indirect
Center Beam Intensity:	3.2 Candela
Central Cone Intensity:	3 Candela
Beam Flux:	4843.9 Lumens
Beam Angle (0-180):	#REF! Degrees
Beam Angle (90-270):	#REF! Degrees
Field Angle (0-180):	#REF! Degrees
Field Angle (90-270):	#REF! Degrees

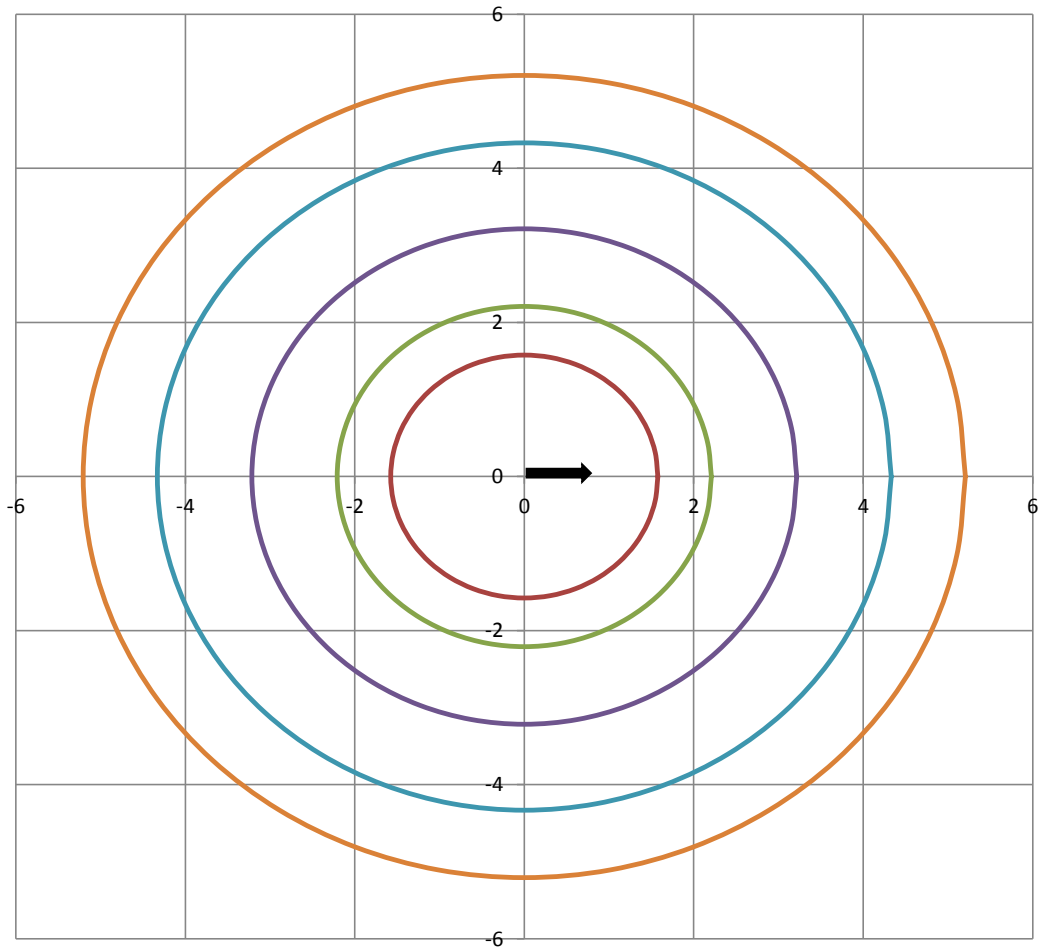
#### Cone of Light Plot





# ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

