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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-40-5K-ME**

Order Number  
11225212  
Test Number  
1234533

Revised Date  
2016-04-18  
Test Date

2016-04-08

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: 5032 Lumens  
Efficacy: 122.8 lm/w  
CCT: 5062 K  
CRI (Ra): 83.6

**Distribution**

Total Lamp Output: 4873 Lumens  
Lamp Efficacy: 119.1 lm/w  
Maximum Candela: 538 Candela

**Electrical Data at 120 VAC**

Test Temperature: 24.9 °C  
Voltage: 120.1 VAC  
Current: 0.3439 A  
Power: 40.97 W  
Power Factor: 0.992  
Frequency: 60 Hz  
Current THD: 12.5 %



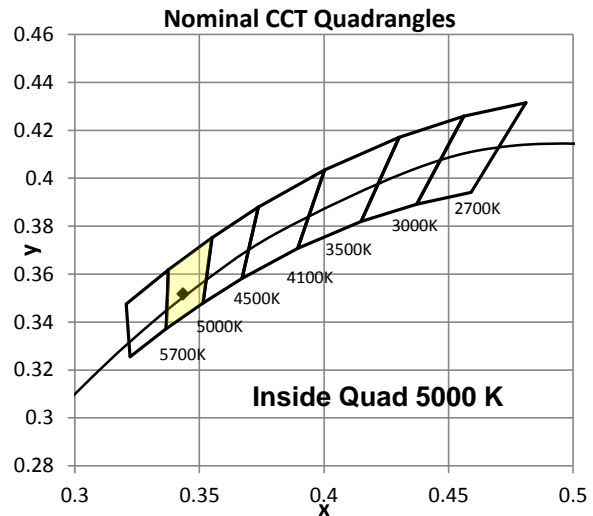
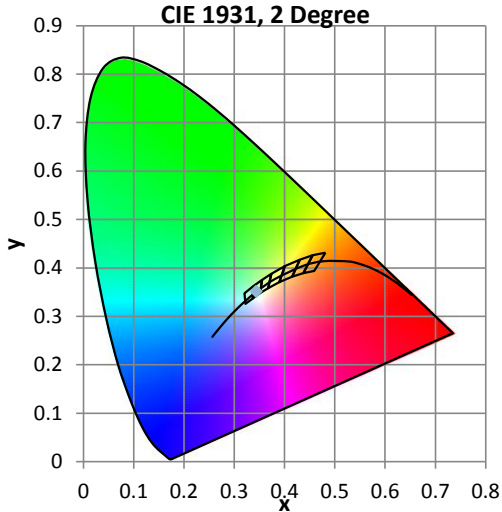
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.1 VAC	0.3439 A	40.97 W	0.992	60 Hz	12.5 %

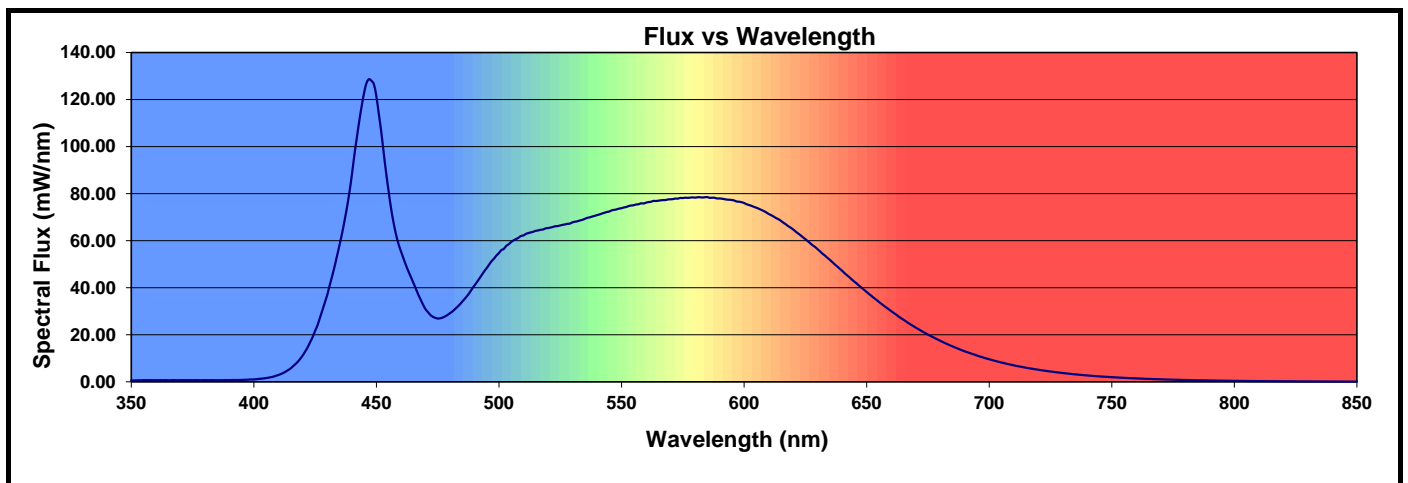
### Summary of Results

<b>Total Output:</b>	5032 Lumens	<b>Chromaticity (x):</b>	0.3434
<b>Efficacy:</b>	122.8 lm/w	<b>Chromaticity (y):</b>	0.3517
<b>CCT:</b>	5062 K	<b>Chromaticity (u'):</b>	0.2102
<b>CRI (Ra):</b>	83.6	<b>Chromaticity (v'):</b>	0.4845
<b>CRI (R9):</b>	13.5	<b>TM-30 R<sub>f</sub>:</b>	82.4
<b>Peak Wavelength:</b>	447.4 nm	<b>TM-30 R<sub>g</sub>:</b>	98.2
<b>Dominant Wavelength:</b>	571 nm	<b>Duv:</b>	0.0001
<b>S/P Ratio:</b>	1.955		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
83.6	82.6	87.1	90.9	84.9	84.0	83.1	86.3	69.9	13.5	70.2	85.9	69.8	83.2	95.1





## Distribution - Goniophotometer

### Distribution Test Conditions

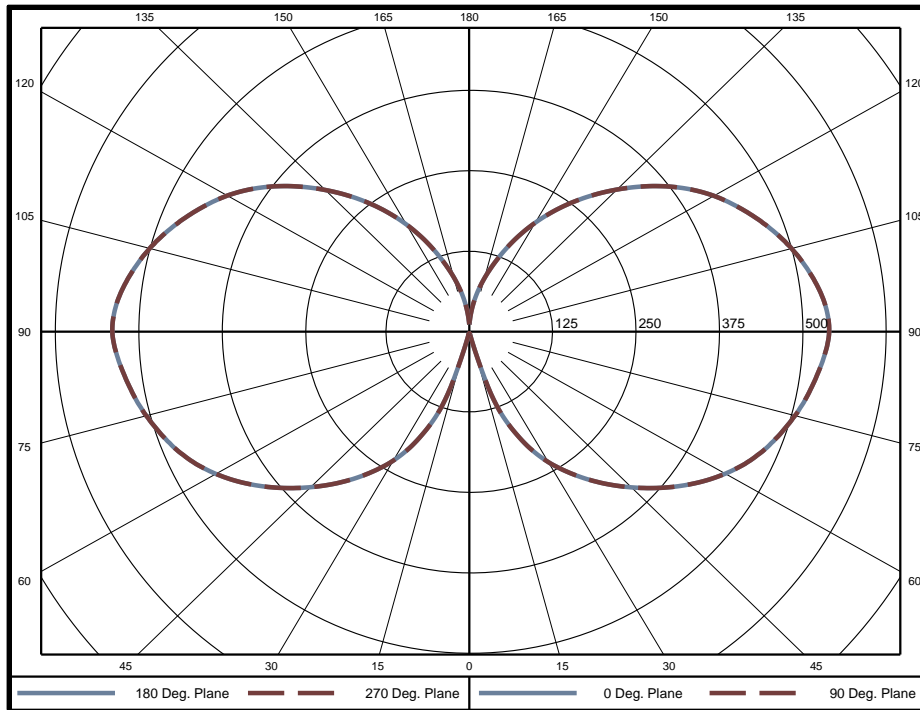
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.6 °C	120.0 VAC	0.3437 A	40.93 W	0.992	60 Hz	12.4 %

### Summary of Results

**Spacing Criteria**  
 0-180: 13.49  
 90-270: 13.49

**Total Lumen Output:** 4873 Lumens  
**Lamp Efficacy:** 119.1 lm/w  
**Maximum Candela:** 538 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	221.3	4.5%	120-125	187.6	3.8%
5-10	0.2	0.0%	65-70	242.0	5.0%	125-130	161.1	3.3%
10-15	0.6	0.0%	70-75	259.2	5.3%	130-135	134.1	2.8%
15-20	12.5	0.3%	75-80	273.7	5.6%	135-140	108.3	2.2%
20-25	33.6	0.7%	80-85	284.9	5.8%	140-145	84.5	1.7%
25-30	53.5	1.1%	85-90	292.9	6.0%	145-150	63.0	1.3%
30-35	74.4	1.5%	90-95	293.7	6.0%	150-155	44.2	0.9%
35-40	96.5	2.0%	95-100	285.7	5.9%	155-160	28.5	0.6%
40-45	120.3	2.5%	100-105	272.1	5.6%	160-165	16.6	0.3%
45-50	145.5	3.0%	105-110	254.8	5.2%	165-170	8.4	0.2%
50-55	171.6	3.5%	110-115	234.4	4.8%	170-175	3.1	0.1%
55-60	197.3	4.0%	115-120	212.0	4.4%	175-180	0.5	0.0%

Zone	Lumens	% of Luminaire
0-40	271	5.6%
0-60	906	18.6%
0-90	2480	50.9%
90-180	2393	49.1%



**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	3.3	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
5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
10	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
15	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
20	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8	128.8
25	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8
30	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9
35	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6	270.6
40	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9	306.9
45	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2	342.2
50	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4	377.4
55	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1	411.1
60	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7	441.7
65	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5	467.5
70	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3
75	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2	504.2
80	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0	518.0
85	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2	530.2
90	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0	538.0
95	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6	532.6
100	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7	517.7
105	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7	498.7
110	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6	475.6
115	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7	449.7
120	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8	421.8
125	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7	388.7
130	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3	351.3
135	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8	311.8
140	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5	272.5
145	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2	233.2
150	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7	193.7
155	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5
160	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6	116.6
165	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2	84.2
170	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2
175	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
180	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5

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

	0	45	90
0	531	531	531
45	75850	75850	75850
55	92220	92220	92220
65	109600	109600	109600
75	127000	127000	127000
85	147600	147600	147600



### 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	5231	5231	5231	5231	4832	4832	4832	4832	4085	4085	4085	3402	3402	3402	2775	2775	2775	2480
1	4477	4138	3835	3561	4087	3789	3521	3277	3136	2927	2736	2536	2376	2228	1983	1863	1750	1476
2	3958	3449	3028	2673	3595	3147	2773	2456	2581	2289	2036	2059	1833	1635	1575	1405	1253	1007
3	3541	2935	2466	2092	3206	2674	2256	1919	2181	1852	1581	1726	1470	1255	1303	1107	940	721
4	3196	2537	2054	1685	2890	2309	1877	1543	1880	1537	1265	1481	1212	995	1110	903	732	537
5	2904	2218	1739	1385	2625	2020	1589	1267	1644	1299	1035	1293	1021	808	967	755	586	412
6	2655	1960	1493	1158	2400	1785	1364	1059	1454	1115	862	1144	875	669	855	644	480	324
7	2439	1746	1297	983	2207	1592	1186	897	1299	969	729	1024	760	563	766	558	400	260
8	2252	1568	1138	843	2039	1431	1040	769	1169	851	623	924	667	480	693	490	338	212
9	2087	1417	1007	730	1893	1295	921	666	1060	754	539	840	591	413	632	434	289	175
10	1943	1289	897	636	1764	1178	821	580	968	673	469	769	529	359	580	389	250	146

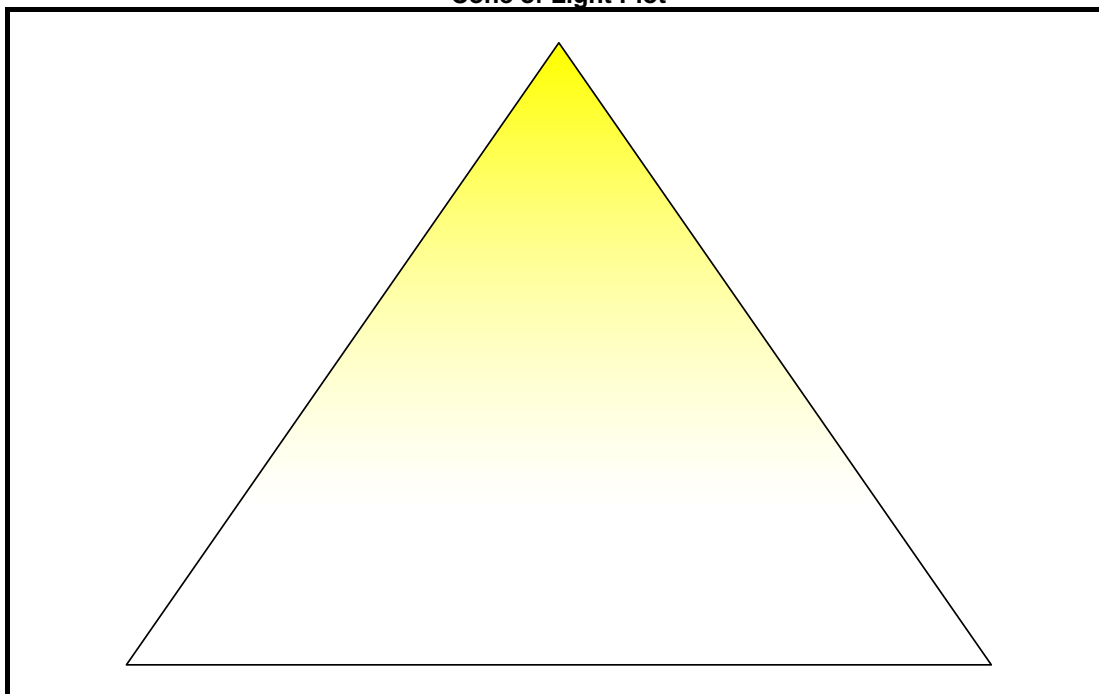
#### Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	0.206	54.0
6.00	0.0916	80.9
8.00	0.0515	108
10.0	0.0330	135
12.0	0.0229	162
14.0	0.0168	189
16.0	0.0129	216

#### Beam and Field Information

CIE Type:	Direct/Indirect
Center Beam Intensity:	3.3 Candela
Central Cone Intensity:	3 Candela
Beam Flux:	4872.9 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

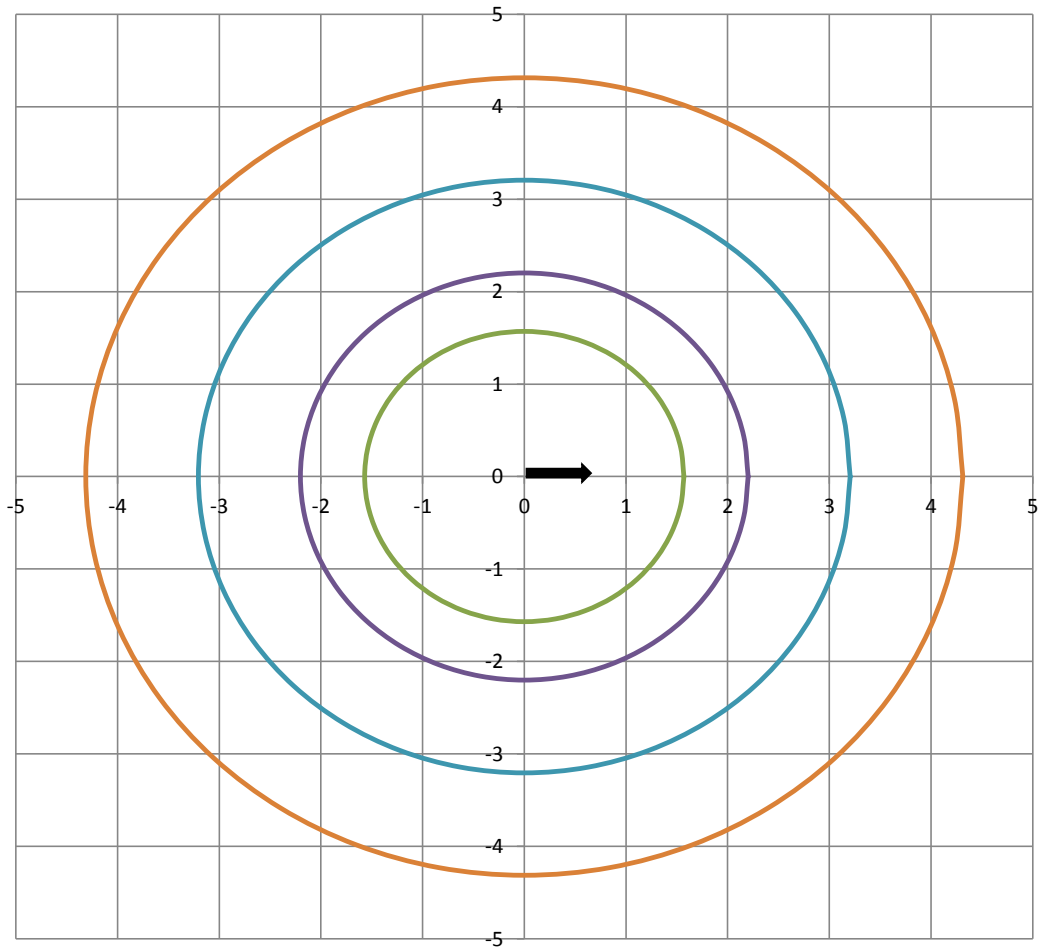
#### Cone of Light Plot





# ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

