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## Photometric Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-10-2014, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2017, IES TM-30-2018

Prepared For  
**Express Imaging Systems LLC dba Evluma**  
3600 Lind Ave SW Suite 140  
Renton, WA 98057  
United States

Catalog Number  
**OM-70-3K-MO**  
Order Number  
12914541  
Test Number  
12914541.06

Test Date

2019-06-18 - 2019-06-26

Prepared By

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Approved By

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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 plastic housing with diffuse lens  
**Lamp:** 96 White LEDs  
**Mounting:** VBD  
**Ballast/Driver:** Integrated

**Luminaire**



**Luminaire Characteristics**

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

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 8724 Lumens  
Efficacy: 125.84 lm/w  
CCT: 3066 K  
CRI (Ra): 81.2

**Distribution**

Total Luminaire Output: 8731 Lumens  
Luminaire Efficacy: 125.8 lm/w  
Maximum Candela: 924 Candela

**Electrical Data at 120 VAC**

Test Temperature: 25.7 °C  
Voltage: 120.1 VAC  
Current: 0.5793 A  
Power: 69.33 W  
Power Factor: 0.997  
Frequency: 60 Hz  
Current THD: 7.68 %



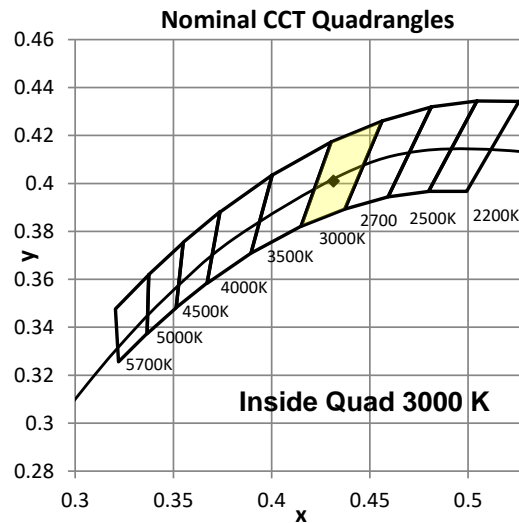
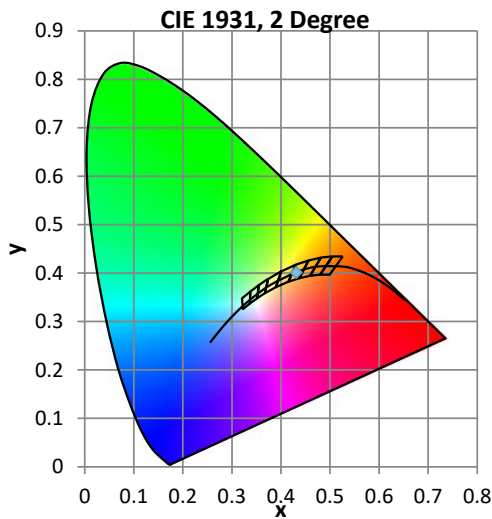
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.7 °C	120.1 VAC	0.5793 A	69.33 W	0.997	60 Hz	7.68 %

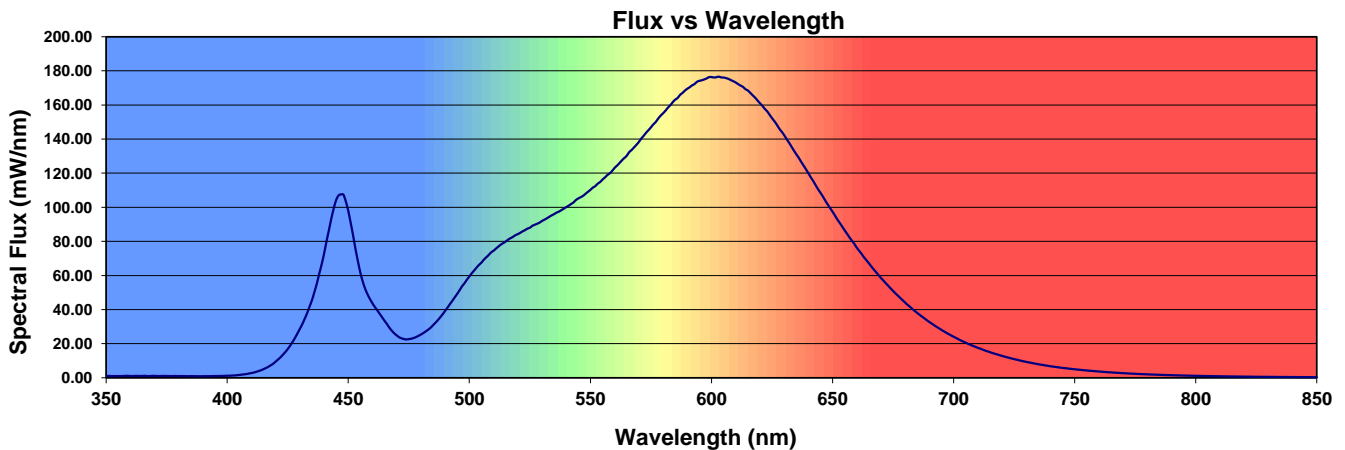
### Summary of Results

<b>Total Output:</b>	8724 Lumens	<b>Chromaticity (x):</b>	0.4315
<b>Efficacy:</b>	125.8 lm/w	<b>Chromaticity (y):</b>	0.4010
<b>CCT:</b>	3066 K	<b>Chromaticity (u'):</b>	0.2484
<b>CRI (Ra):</b>	81.2	<b>Chromaticity (v'):</b>	0.5194
<b>CRI (R9):</b>	0.8	<b>TM-30 Rf:</b>	82.6
<b>Peak Wavelength:</b>	603 nm	<b>TM-30 Rg:</b>	98.3
<b>Dominant Wavelength:</b>	583 nm	<b>Duv:</b>	-0.0005
<b>S/P Ratio:</b>	1.34		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81.2	79.3	88.4	96.2	80.5	79.6	85.9	82.5	57.5	0.8	74.2	80.4	70.6	81.2	98.1	71.4





## Distribution - Goniophotometer

### Distribution Test Conditions

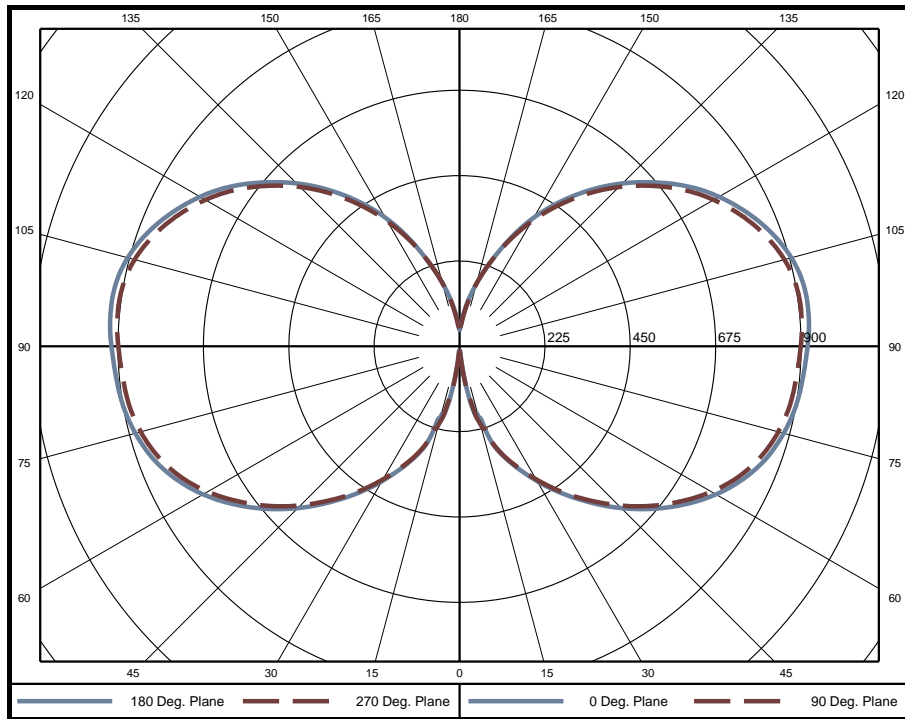
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.4 °C	120.1 VAC	0.5796 A	69.39 W	0.997	60 Hz	7.68 %

### Summary of Results

**Spacing Criteria**  
 0-180: 11.06  
 90-270: 11.00

**Total Lumen Output:** 8731 Lumens  
**Luminaire Efficacy:** 125.8 lm/w  
**Maximum Candela:** 924 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	0.3	0.0%	60-65	387.4	4.4%	120-125	349.3	4.0%
5-10	5.2	0.1%	65-70	423.8	4.9%	125-130	303.4	3.5%
10-15	20.5	0.2%	70-75	452.7	5.2%	130-135	256.4	2.9%
15-20	40.3	0.5%	75-80	473.9	5.4%	135-140	210.2	2.4%
20-25	66.8	0.8%	80-85	487.5	5.6%	140-145	165.8	1.9%
25-30	95.5	1.1%	85-90	495.3	5.7%	145-150	124.9	1.4%
30-35	129.4	1.5%	90-95	499.5	5.7%	150-155	88.4	1.0%
35-40	167.4	1.9%	95-100	496.8	5.7%	155-160	57.4	0.7%
40-45	209.3	2.4%	100-105	484.3	5.5%	160-165	33.7	0.4%
45-50	254.2	2.9%	105-110	461.0	5.3%	165-170	17.2	0.2%
50-55	299.8	3.4%	110-115	429.1	4.9%	170-175	6.6	0.1%
55-60	344.9	4.0%	115-120	391.3	4.5%	175-180	1.4	0.0%

Zone	Lumens	% of Luminaire
0-40	525	6.0%
0-60	1634	18.7%
0-90	4354	49.9%
90-180	4377	50.1%



**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	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
5	10.7	11.4	13.3	14.6	15.8	14.6	13.3	11.4	10.7	11.4	13.3	14.6	15.8	14.6	13.3	11.4
10	123.9	125.0	128.8	128.3	127.3	128.3	128.8	125.0	123.9	125.0	128.8	128.3	127.3	128.3	128.8	125.0
15	192.9	203.0	205.2	209.5	212.1	209.5	205.2	203.0	192.9	203.0	205.2	209.5	212.1	209.5	205.2	203.0
20	289.7	288.1	286.3	285.9	285.0	285.9	286.3	288.1	289.7	288.1	286.3	285.9	285.0	285.9	286.3	288.1
25	349.8	348.6	345.8	345.2	344.7	345.2	345.8	348.6	349.8	348.6	345.8	345.2	344.7	345.2	345.8	348.6
30	411.3	409.6	406.3	405.3	404.5	405.3	406.3	409.6	411.3	409.6	406.3	405.3	404.5	405.3	406.3	409.6
35	473.5	472.6	469.5	467.4	466.8	467.4	469.5	472.6	473.5	472.6	469.5	467.4	466.8	467.4	469.5	472.6
40	537.2	535.8	531.8	529.4	528.5	529.4	531.8	535.8	537.2	535.8	531.8	529.4	528.5	529.4	531.8	535.8
45	602.7	600.6	596.4	593.3	591.8	593.3	596.4	600.6	602.7	600.6	596.4	593.3	591.8	593.3	596.4	600.6
50	666.3	664.2	659.0	655.1	653.9	655.1	659.0	664.2	666.3	664.2	659.0	655.1	653.9	655.1	659.0	664.2
55	725.6	723.4	717.5	712.6	711.4	712.6	717.5	723.4	725.6	723.4	717.5	712.6	711.4	712.6	717.5	723.4
60	780.2	778.6	772.4	766.8	765.9	766.8	772.4	778.6	780.2	778.6	772.4	766.8	765.9	766.8	772.4	778.6
65	825.9	824.2	818.2	812.4	811.6	812.4	818.2	824.2	825.9	824.2	818.2	812.4	811.6	812.4	818.2	824.2
70	860.9	859.0	853.1	846.9	845.9	846.9	853.1	859.0	860.9	859.0	853.1	846.9	845.9	846.9	853.1	859.0
75	884.5	883.0	877.5	870.7	869.3	870.7	877.5	883.0	884.5	883.0	877.5	870.7	869.3	870.7	877.5	883.0
80	900.5	899.1	893.2	885.7	884.4	885.7	893.2	899.1	900.5	899.1	893.2	885.7	884.4	885.7	893.2	899.1
85	909.0	908.0	901.1	893.6	891.2	893.6	901.1	908.0	909.0	908.0	901.1	893.6	891.2	893.6	901.1	908.0
90	917.6	916.0	909.2	901.5	898.9	901.5	909.2	916.0	917.6	916.0	909.2	901.5	898.9	901.5	909.2	916.0
95	923.6	921.6	914.8	907.2	904.5	907.2	914.8	921.6	923.6	921.6	914.8	907.2	904.5	907.2	914.8	921.6
100	921.4	919.2	912.1	904.8	902.0	904.8	912.1	919.2	921.4	919.2	912.1	904.8	902.0	904.8	912.1	919.2
105	905.0	902.6	895.5	888.5	885.9	888.5	895.5	902.6	905.0	902.6	895.5	888.5	885.9	888.5	895.5	902.6
110	874.9	872.7	865.6	859.3	857.1	859.3	865.6	872.7	874.9	872.7	865.6	859.3	857.1	859.3	865.6	872.7
115	835.6	833.2	826.8	821.0	818.7	821.0	826.8	833.2	835.6	833.2	826.8	821.0	818.7	821.0	826.8	833.2
120	789.4	786.9	781.4	775.8	773.4	775.8	781.4	786.9	789.4	786.9	781.4	775.8	773.4	775.8	781.4	786.9
125	735.1	732.5	727.9	722.4	720.1	722.4	727.9	732.5	735.1	732.5	727.9	722.4	720.1	722.4	727.9	732.5
130	672.8	670.5	666.2	661.7	659.2	661.7	666.2	670.5	672.8	670.5	666.2	661.7	659.2	661.7	666.2	670.5
135	608.1	604.8	600.9	597.4	595.1	597.4	600.9	604.8	608.1	604.8	600.9	597.4	595.1	597.4	600.9	604.8
140	539.3	534.8	531.8	528.6	526.4	528.6	531.8	534.8	539.3	534.8	531.8	528.6	526.4	528.6	531.8	534.8
145	467.5	462.2	459.7	456.6	455.0	456.6	459.7	462.2	467.5	462.2	459.7	456.6	455.0	456.6	459.7	462.2
150	392.8	388.4	385.8	383.2	381.8	383.2	385.8	388.4	392.8	388.4	385.8	383.2	381.8	383.2	385.8	388.4
155	312.5	311.5	309.1	309.7	307.3	309.7	309.1	311.5	312.5	311.5	309.1	309.7	307.3	309.7	309.1	311.5
160	234.5	236.1	235.1	237.1	236.3	237.1	235.1	236.1	234.5	236.1	235.1	237.1	236.3	237.1	235.1	236.1
165	171.3	172.2	172.4	171.7	172.0	171.7	172.4	172.2	171.3	172.2	172.4	171.7	172.0	171.7	172.4	172.2
170	117.2	117.0	115.7	113.5	113.0	113.5	115.7	117.0	117.2	117.0	115.7	113.5	113.0	113.5	115.7	117.0
175	68.2	68.8	67.2	64.5	63.7	64.5	67.2	68.8	68.2	68.8	67.2	64.5	63.7	64.5	67.2	68.8
180	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6

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

Horizontal Angle (Degrees)

	0	45	90
0	1634	1634	1634
45	133600	132200	131200
55	162800	161000	159600
65	193600	191800	190200
75	222800	221000	219000
85	253000	250800	248000

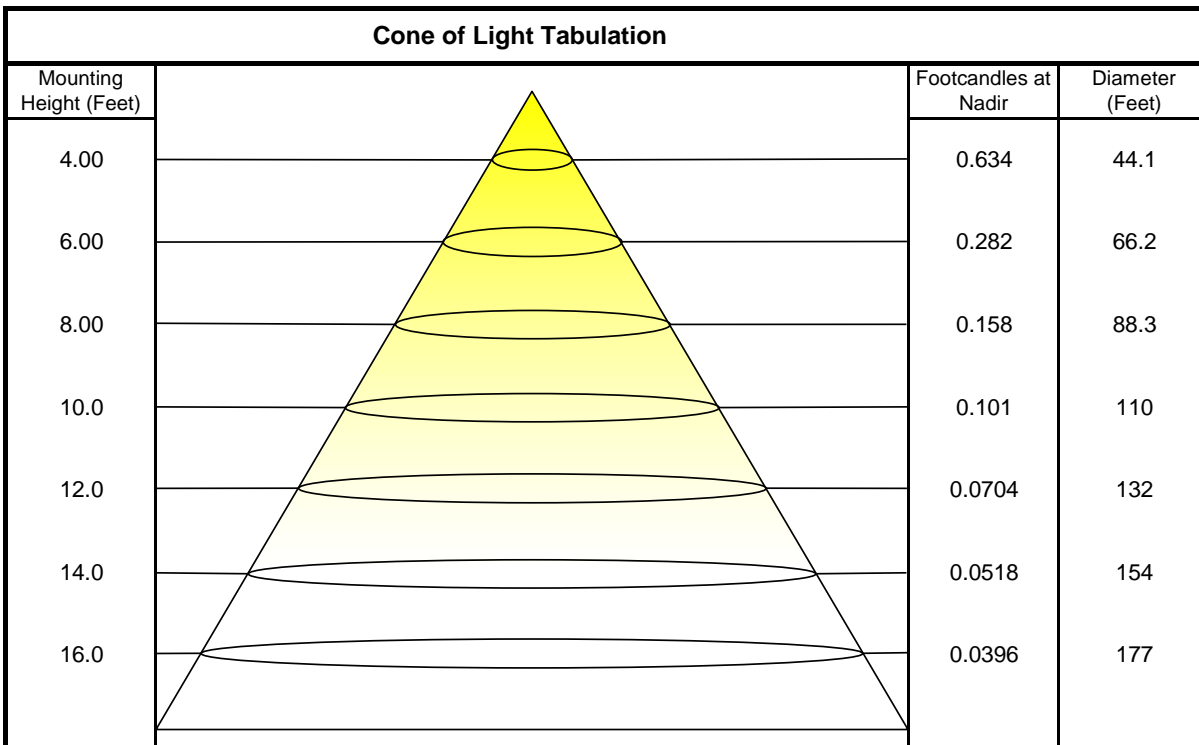


### Coefficients of Utilization - Zonal Cavity Method

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 percent of total lumen output delivered to the task surface **																	
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	92	85	79	74	84	78	72	68	64	60	56	52	49	46	40	38	36	30
2	81	71	63	55	74	65	57	51	53	47	42	42	38	34	32	29	26	21
3	73	61	51	44	66	55	47	40	45	38	33	35	30	26	27	23	19	15
4	66	52	43	35	60	48	39	32	39	32	26	31	25	21	23	19	15	11
5	60	46	36	29	54	42	33	27	34	27	22	27	21	17	20	16	12	9
6	55	41	31	24	49	37	28	22	30	23	18	24	18	14	18	13	10	7
7	50	36	27	21	46	33	25	19	27	20	15	21	16	12	16	12	9	6
8	46	33	24	18	42	30	22	16	24	18	13	19	14	10	14	10	7	5
9	43	29	21	15	39	27	19	14	22	16	11	17	12	9	13	9	6	4
10	40	27	19	14	36	25	17	12	20	14	10	16	11	8	12	8	5	3

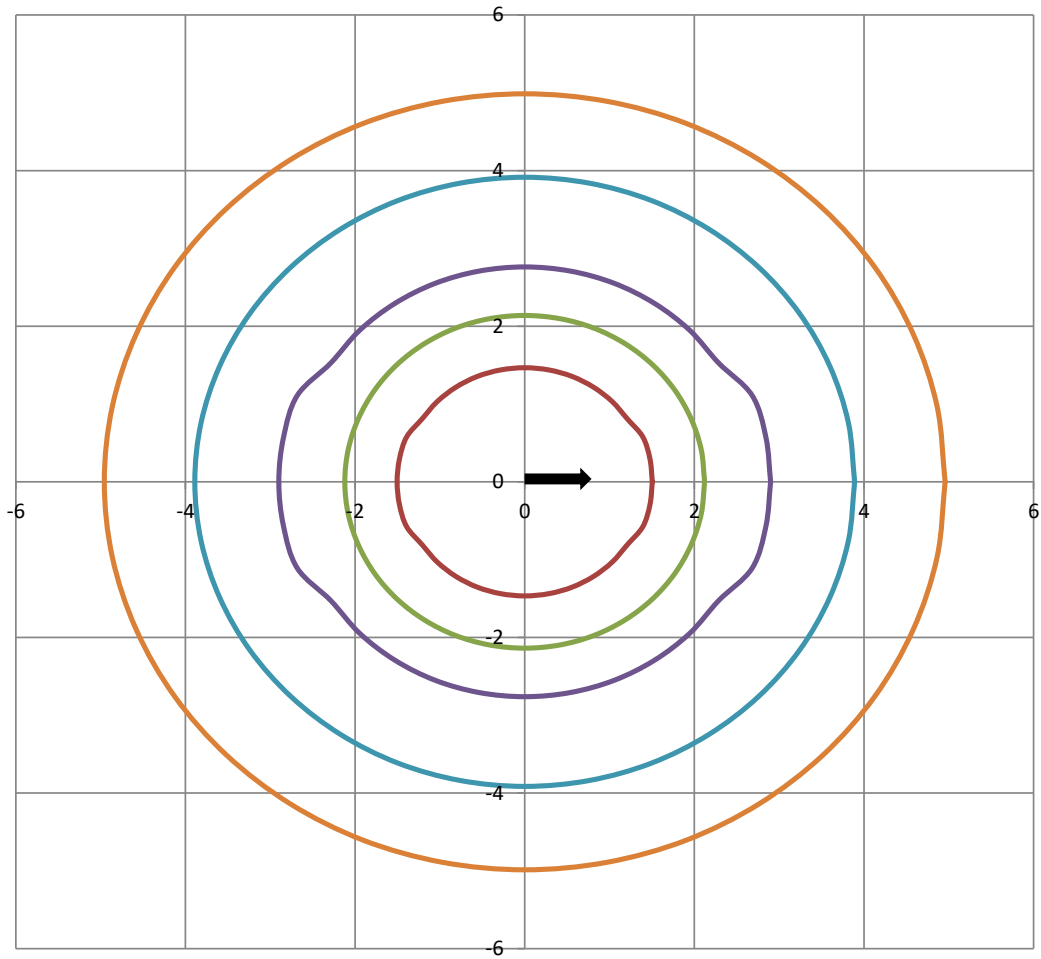
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	10.1 Candela
Central Cone Intensity:	N/A Candela
Beam Flux:	8730.7 Lumens
Beam Angle (0-180):	N/A Degrees
Beam Angle (90-270):	N/A Degrees
Field Angle (0-180):	N/A Degrees
Field Angle (90-270):	N/A Degrees





# ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

