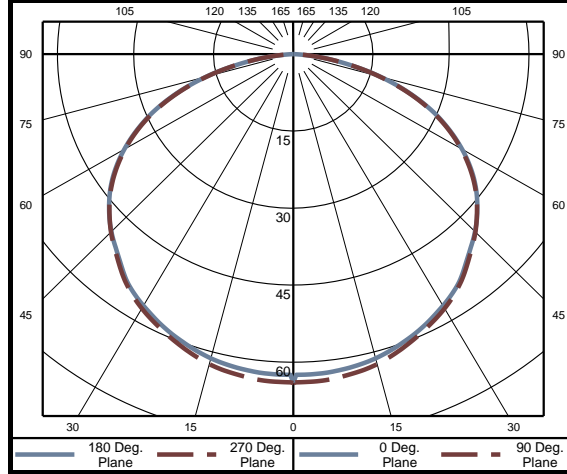




**SIRS Electronics Inc**  
Catalog Number  
**ACUVIBRANT-12CV-4016 - ALL COLORS**

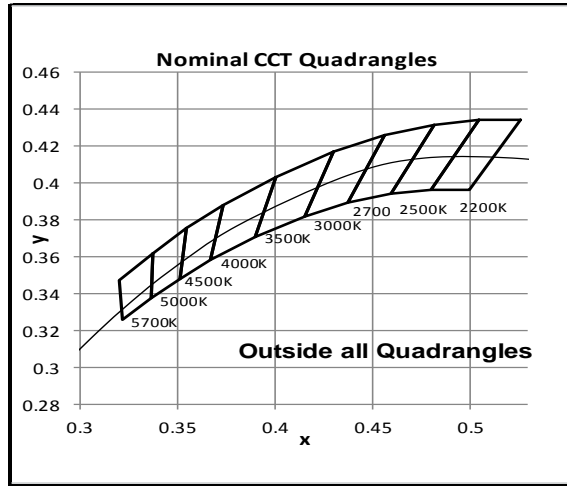
Electrical Test Conditions						
Temp	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.4 °C	12.00 VDC	0.3953 A	4.745 W	N/A	N/A	N/A

Summary of Results	
Total Lumen Output	230.7 Lumens
Luminaire Efficacy	49.5 lm/w
Maximum Candela	65 Candela
CCT	22000 K
CRI	64.0
Duv	0.0250
TM-30 Rf	0.0
TM-30 Rg	0.0



Intensity (Candlepower) Summary		
Angle	Mean CP	Lumens
0	64	
5	64	6
10	64	
15	63	18
20	61	
25	60	28
30	58	
35	56	35
40	53	
45	50	38
50	47	
55	43	38
60	38	
65	32	32
70	25	
75	18	19
80	10	
85	3	4
90	0	

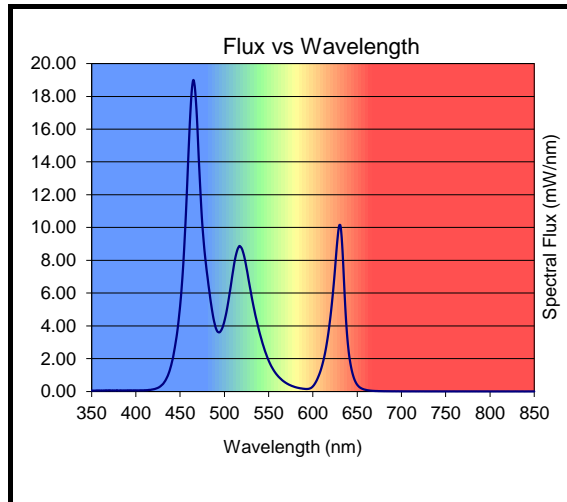
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	51	23.7%
0-40	86	39.8%
0-60	163	75.1%
0-90	217	100.0%
40-90	131	60.2%
60-90	54	24.9%
90-180	0	0.0%
0-180	217	100.0%



Spacing Criteria	
0-180	1.33
90-270	1.33

Color Rendering Index Details	
Ra (CRI)	64.0
R1	62.9
R2	64.8
R3	67.1
R4	81.1
R5	79.2
R6	60.5
R7	60.5
R8	36.0
R9	-114.5
R10	15.1
R11	75.2
R12	67.4
R13	54.9
R14	79.4

Average Luminance cd/m <sup>2</sup>	
Vertical Angle	Horizontal Angle 0°
0	16900
45	18280
55	19320
65	19720
75	17710
85	8276



Cone of Light Tabulation		
Mounting Height (Ft)	Footcandles at Nadir	Diameter (Ft)
4.00	4.00	5.39
6.00	1.78	8.09
8.00	1.00	10.8
10.0	0.641	13.5
12.0	0.445	16.2
14.0	0.327	18.9
16.0	0.250	21.6

Chromaticity Coordinates	
Chromaticity (x)	0.2196
Chromaticity (y)	0.2549
Chromaticity (u)	0.1563
Chromaticity (v)	0.2722
Chromaticity (u')	0.1563
Chromaticity (v')	0.4082
Duv	0.0250

Testing was performed in accordance with LM-79-08  
The results contained in this summary pertain only to report #11714176.04



UL Verification Services Inc.  
7036 Snowdrift Road  
Allentown, PA 18106  
610-774-1300



## Integrating Sphere Test Report

### Relevant Standards

IES LM-79-2008, ANSI C82.77-2002, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2015, IES TM-30-2015

### Prepared For

## SIRS Electronics Inc

4705 Hwy 36 S  
STE 5  
Rosenberg, TX 77471  
United States

### Catalog Number

## ACUVIBRANT-12CV-4016 - RED

Order Number

11714176

Test Number

11714176.01

Test Date

2017-04-13

Prepared By

Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

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**Luminaire Description:** Formed aluminum backing plate, LED strip with no lens enclosure - 1' length (304.8mm)  
**Lamp:** 18 RGB LEDs  
**Mounting:** Surface – Ceiling  
**Ballast/Driver:** None

**Luminaire**



**Summary of Results**

Radiant Flux:	209.6 mW
Luminous Flux:	45.07 lm
Luminaire Efficacy:	30.2 lm/W
Chromaticity (x):	0.6940
Chromaticity (y):	0.3052
Chromaticity (u):	0.5263
Chromaticity (v):	0.3472
Duv:	0.0064

**Test Conditions**

Test Temperature:	25.0 °C
Voltage:	12.00 VDC
Current:	0.1246 A
Power:	1.494 W

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



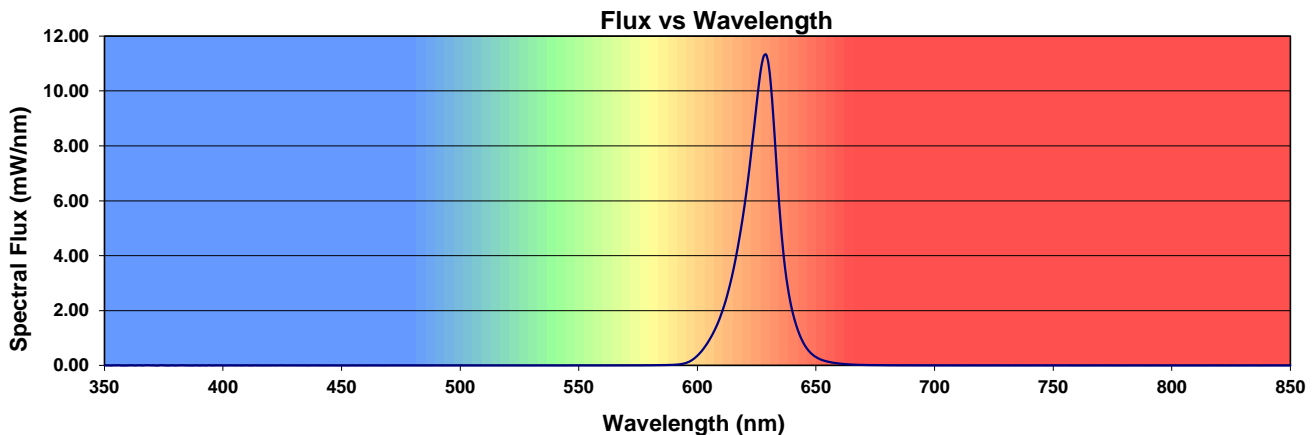
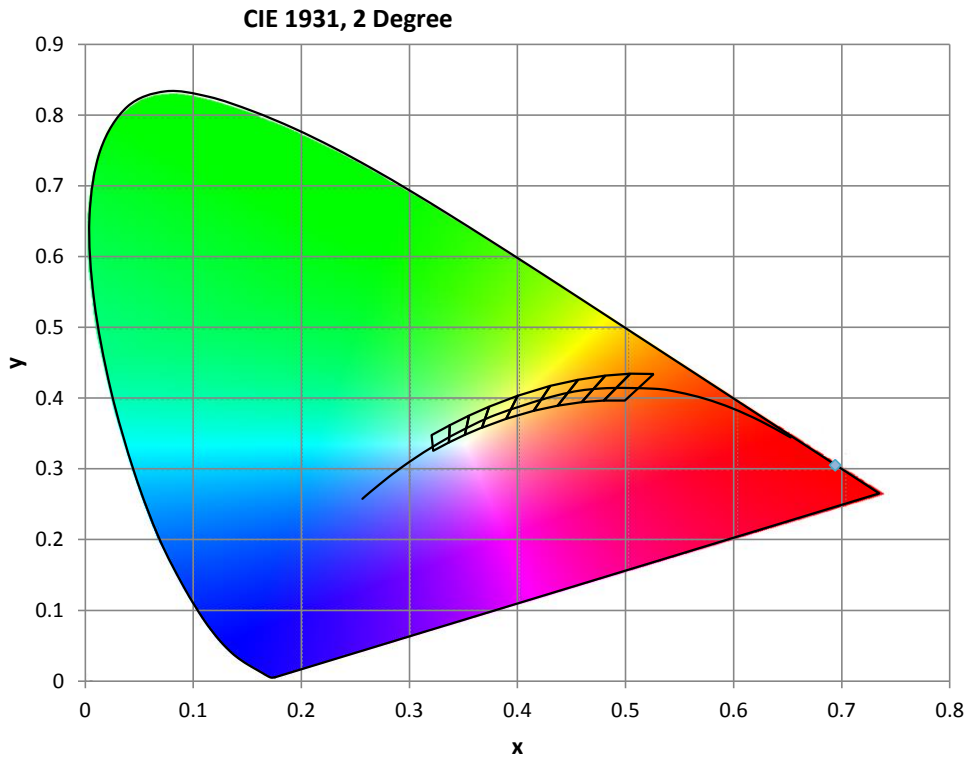
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	12 VDC	0.1246 A	1.494 W	N/A	N/A	N/A

### Summary of Results

<b>Total Output:</b>	45 Lumens	<b>Chromaticity (x):</b>	0.6940
<b>Efficacy:</b>	30.2 lm/w	<b>Chromaticity (y):</b>	0.3052
<b>Peak Wavelength:</b>	628.6 nm	<b>Chromaticity (u'):</b>	0.5263
<b>Dominant Wavelength:</b>	621.6 nm	<b>Chromaticity (v'):</b>	0.5208
<b>S/P Ratio:</b>	0.054	<b>Duv:</b>	0.0064





UL Verification Services Inc.  
7036 Snowdrift Road  
Allentown, PA 18106  
610-774-1300



## Integrating Sphere Test Report

### Relevant Standards

IES LM-79-2008, ANSI C82.77-2002, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2015, IES TM-30-2015

### Prepared For

## SIRS Electronics Inc

4705 Hwy 36 S  
STE 5  
Rosenberg, TX 77471  
United States

### Catalog Number

## ACUVIBRANT-12CV-4016 - GREEN

Order Number

11714176

Test Number

11714176.02

Test Date

2017-04-13

Prepared By

Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

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**Luminaire Description:** Formed aluminum backing plate, LED strip with no lens enclosure - 1' length (304.8mm)  
**Lamp:** 18 RGB LEDs  
**Mounting:** Surface – Ceiling  
**Ballast/Driver:** None

**Luminaire**



**Summary of Results**

Radiant Flux:	345.4 mW
Luminous Flux:	160.9 lm
Luminaire Efficacy:	97.6 lm/W
Chromaticity (x):	0.1528
Chromaticity (y):	0.7224
Chromaticity (u):	0.0538
Chromaticity (v):	0.3814
Duv:	0.1609

**Test Conditions**

Test Temperature:	25.3 °C
Voltage:	12.00 VDC
Current:	0.1374 A
Power:	1.649 W

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.  
Absorption correction was employed for this measurement.



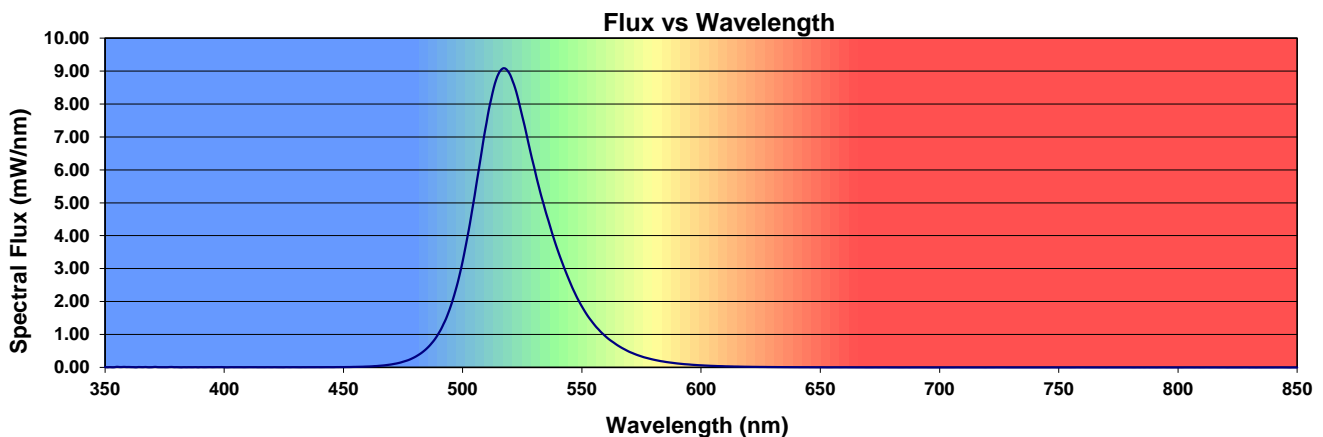
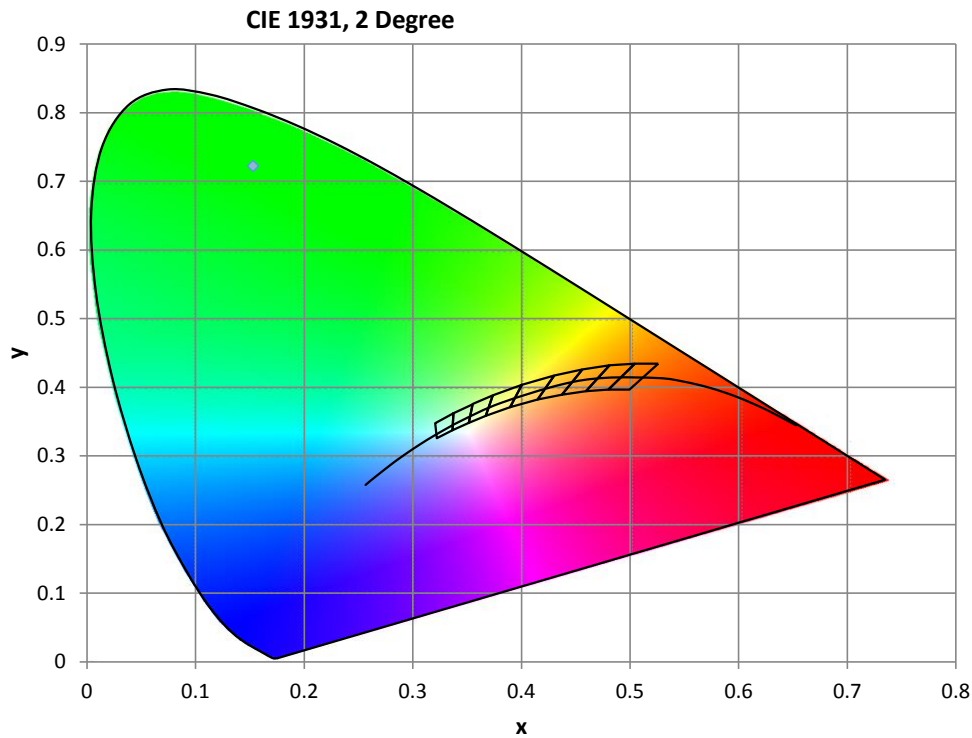
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.3 °C	12.0 VDC	0.1374 A	1.649 W	N/A	N/A	N/A

### Summary of Results

<b>Total Output:</b>	161 Lumens	<b>Chromaticity (x):</b>	0.1528
<b>Efficacy:</b>	97.6 lm/w	<b>Chromaticity (y):</b>	0.7224
<b>Peak Wavelength:</b>	517.3 nm	<b>Chromaticity (u'):</b>	0.0538
<b>Dominant Wavelength:</b>	523.6 nm	<b>Chromaticity (v'):</b>	0.5722
<b>S/P Ratio:</b>	3.034	<b>Duv:</b>	0.1609





UL Verification Services Inc.  
7036 Snowdrift Road  
Allentown, PA 18106  
610-774-1300



## Integrating Sphere Test Report

### Relevant Standards

IES LM-79-2008, ANSI C82.77-2002, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2015, IES TM-30-2015

### Prepared For

## SIRS Electronics Inc

4705 Hwy 36 S  
STE 5  
Rosenberg, TX 77471  
United States

### Catalog Number

**ACUVIBRANT-12CV-4016 - BLUE**

Order Number

11714176

Test Number

11714176.03

Test Date

2017-04-13

Prepared By

Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

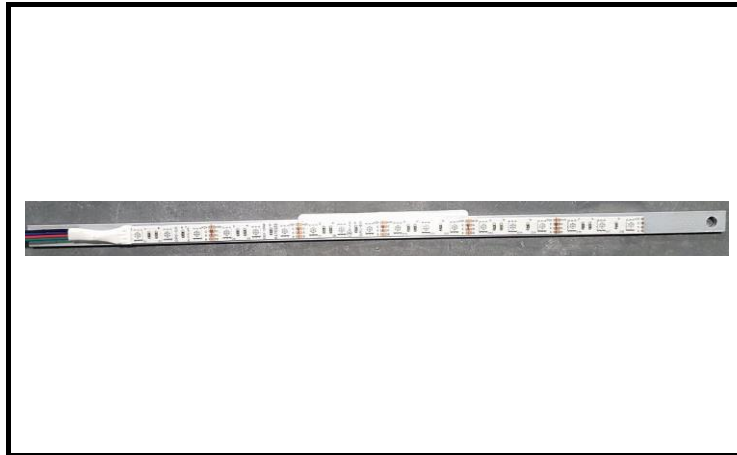
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**Luminaire Description:** Formed aluminum backing plate, LED strip with no lens enclosure - 1' length (304.8mm)  
**Lamp:** 18 RGB LEDs  
**Mounting:** Surface – Ceiling  
**Ballast/Driver:** None

**Luminaire**



**Summary of Results**

Radiant Flux:	518 mW
Luminous Flux:	35.17 lm
Luminaire Efficacy:	23.3 lm/W
Chromaticity (x):	0.1327
Chromaticity (y):	0.0609
Chromaticity (u):	0.1532
Chromaticity (v):	0.1054
Duv:	0.0191

**Test Conditions**

Test Temperature:	25.7 °C
Voltage:	12.00 VDC
Current:	0.1260 A
Power:	1.512 W

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



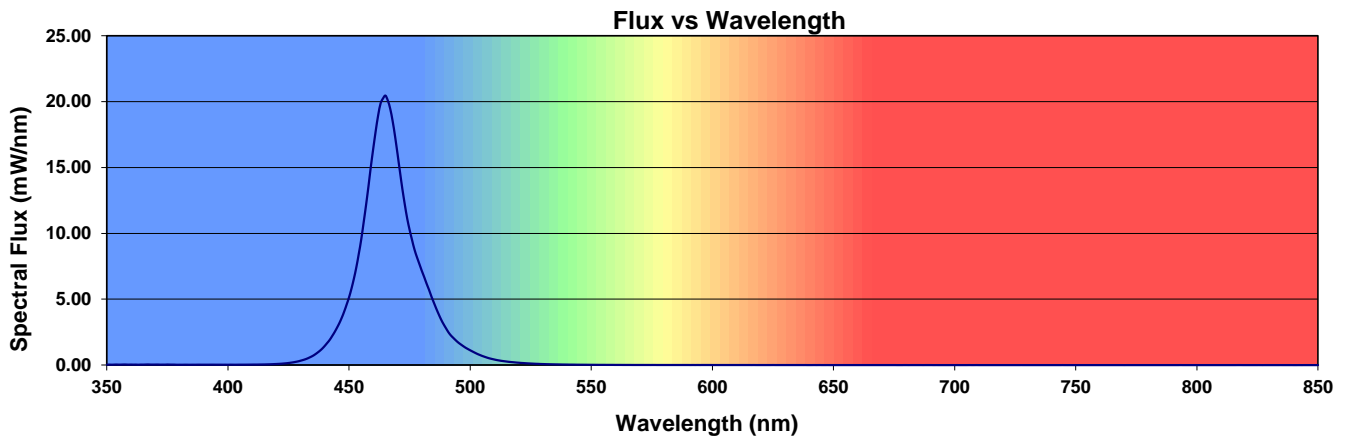
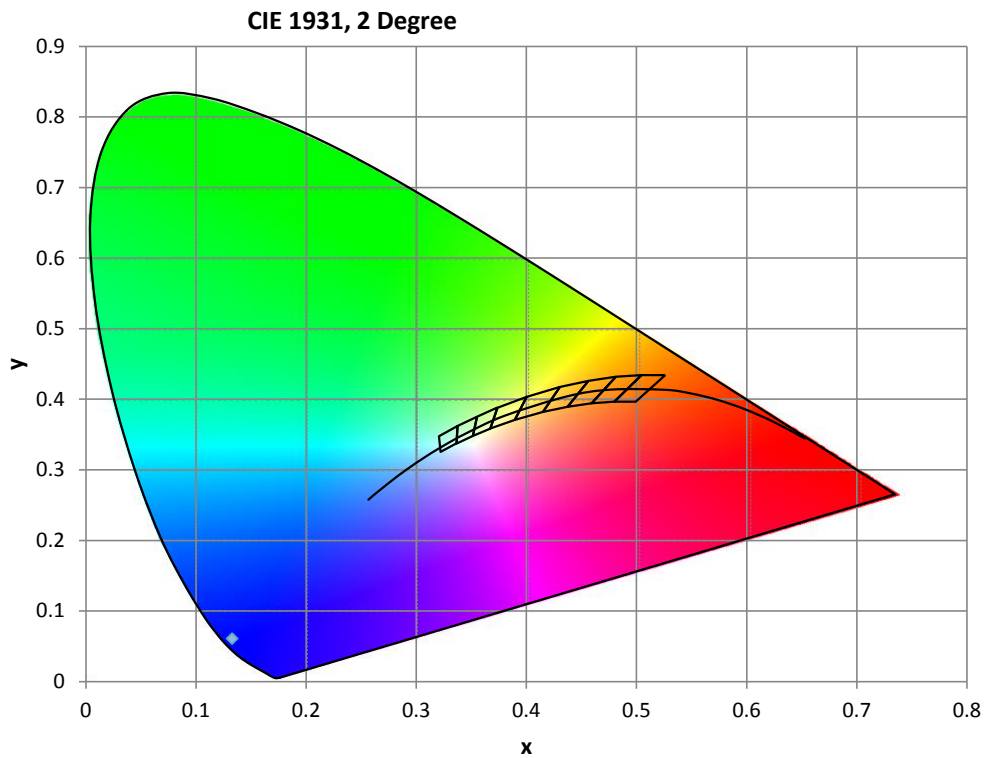
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.7 °C	12.0 VDC	0.1260 A	1.512 W	N/A	N/A	N/A

### Summary of Results

<b>Total Output:</b>	35 Lumens	<b>Chromaticity (x):</b>	0.1327
<b>Efficacy:</b>	23.3 lm/w	<b>Chromaticity (y):</b>	0.0609
<b>Peak Wavelength:</b>	464.7 nm	<b>Chromaticity (u'):</b>	0.1532
<b>Dominant Wavelength:</b>	469 nm	<b>Chromaticity (v'):</b>	0.1581
<b>S/P Ratio:</b>	16	<b>Duv:</b>	0.0191





UL Verification Services Inc.  
7036 Snowdrift Road  
Allentown, PA 18106  
610-774-1300



## Photometric Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-2002, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2015, IES TM-30-2015

Prepared For  
**SIRS Electronics Inc**

4705 Hwy 36 S  
STE 5  
Rosenberg, TX 77471  
United States

Catalog Number  
**ACUVIBRANT-12CV-4016 - ALL COLORS**

Order Number  
11714176  
Test Number  
11714176.04

Test Date

2017-04-10 - 2017-04-19

Prepared By

Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

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ISOFootcandle Plot	Page 8

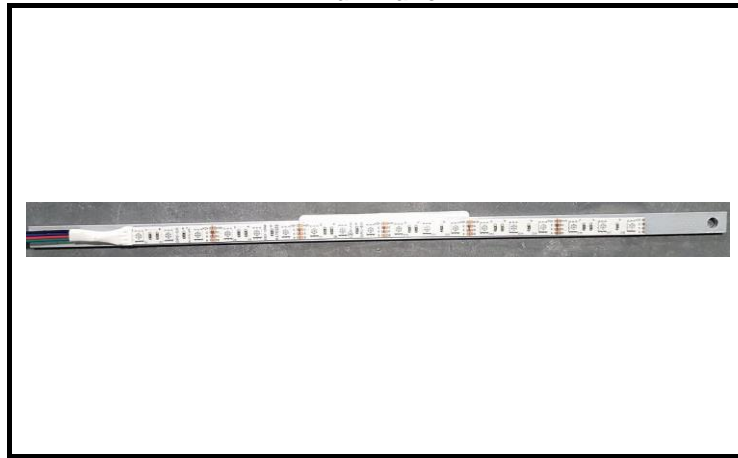
Laboratory results may not be representative of field performance  
Ballast factors have not been applied

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



**Luminaire Description:** Formed aluminum backing plate, LED strip with no lens enclosure - 1' length (304.8mm)  
**Lamp:** 18 RGB LEDs  
**Mounting:** Surface – Ceiling  
**Ballast/Driver:** None

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 11.75 in.  
Luminous Width: 0.5000 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 231 Lumens  
Efficacy: 49.5 lm/w  
CCT: 22000 K  
CRI (Ra): 64.0

**Distribution**

Total Luminaire Output: 216.7 Lumens  
Luminaire Efficacy: 45.7 lm/w  
Maximum Candela: 65 Candela

**Electrical Data at 12 VDC**

Test Temperature: 24.7 °C  
Voltage: 12.00 VDC  
Current: 0.3883 A  
Power: 4.659 W



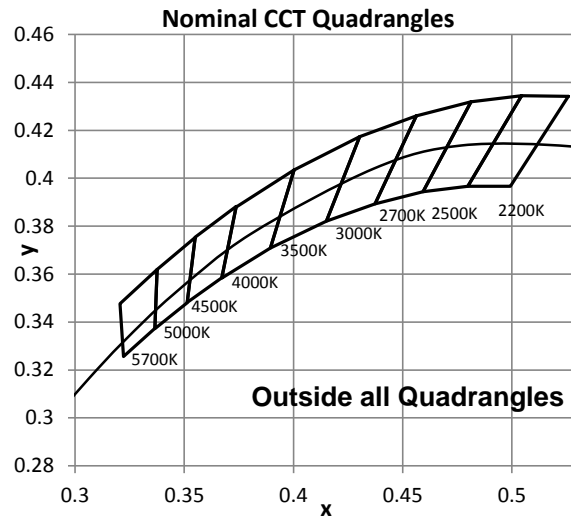
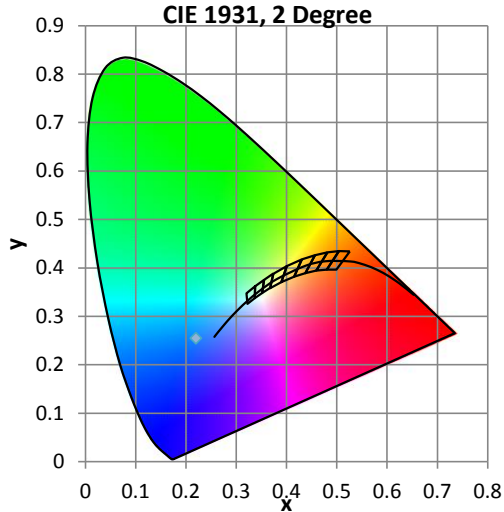
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	12.0 VDC	0.3883 A	4.659 W	N/A	N/A	N/A

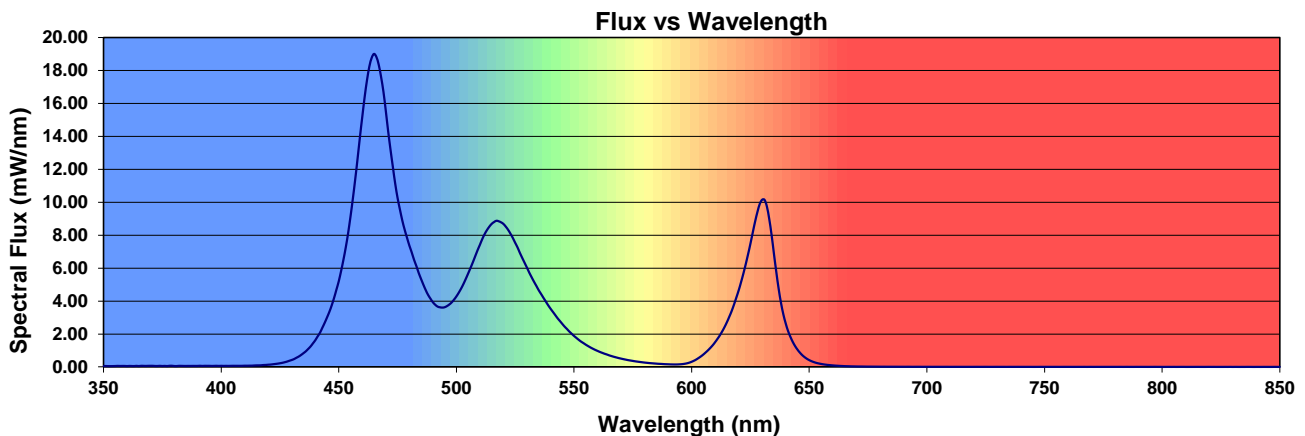
### Summary of Results

<b>Total Output:</b>	231 Lumens	<b>Chromaticity (x):</b>	0.2196
<b>Efficacy:</b>	49.5 lm/w	<b>Chromaticity (y):</b>	0.2549
<b>CCT:</b>	22000 K	<b>Chromaticity (u'):</b>	0.1563
<b>CRI (Ra):</b>	64.0	<b>Chromaticity (v'):</b>	0.4082
<b>CRI (R9):</b>	-114.5	<b>TM-30 R<sub>f</sub>:</b>	
<b>Peak Wavelength:</b>	465.1 nm	<b>TM-30 R<sub>g</sub>:</b>	
<b>Dominant Wavelength:</b>	482.2 nm	<b>Duv:</b>	0.0250
<b>S/P Ratio:</b>	4.417		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
64.0	62.9	64.8	67.1	81.1	79.2	60.5	60.5	36.0	-114.5	15.1	75.2	67.4	54.9	79.4





## Distribution - Goniophotometer

### Distribution Test Conditions

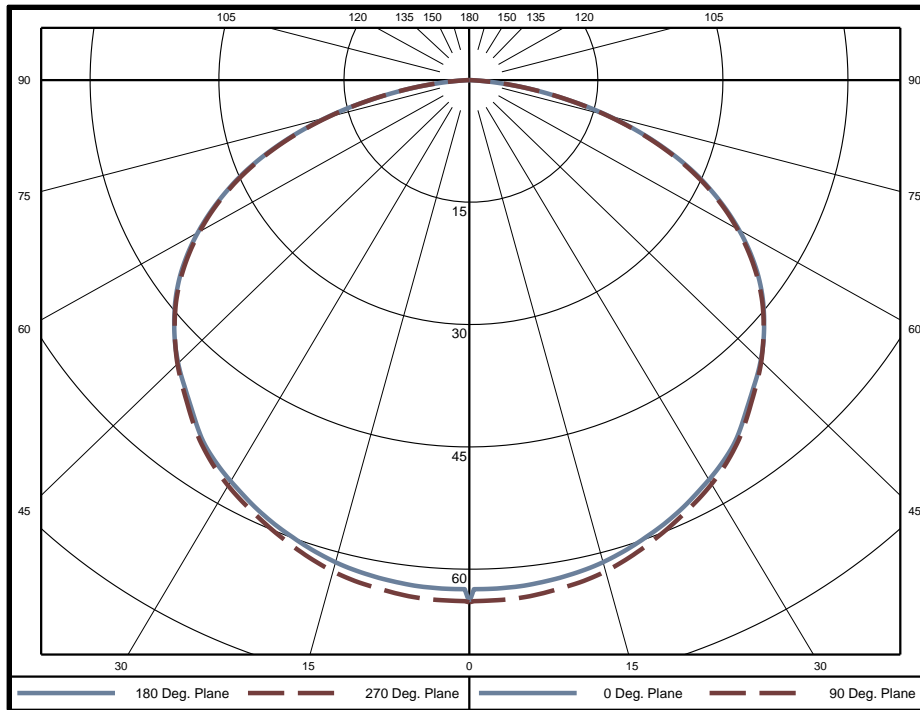
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.4 °C	12.00 VDC	0.3953 A	4.745 W	N/A	N/A	N/A

### Summary of Results

**Spacing Criteria**  
 0-180: 1.33  
 90-270: 1.33

**Total Lumen Output:** 216.7 Lumens  
**Luminaire Efficacy:** 45.7 lm/w  
**Maximum Candela:** 65 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	1.53	0.7%	60-65	17.03	7.9%	120-125	0	0.0%
5-10	4.56	2.1%	65-70	14.60	6.7%	125-130	0	0.0%
10-15	7.49	3.5%	70-75	11.24	5.2%	130-135	0	0.0%
15-20	10.22	4.7%	75-80	7.27	3.4%	135-140	0	0.0%
20-25	12.69	5.9%	80-85	3.35	1.5%	140-145	0	0.0%
25-30	14.88	6.9%	85-90	0.48	0.2%	145-150	0	0.0%
30-35	16.73	7.7%	90-95	0	0.0%	150-155	0	0.0%
35-40	18.07	8.3%	95-100	0	0.0%	155-160	0	0.0%
40-45	18.97	8.8%	100-105	0	0.0%	160-165	0	0.0%
45-50	19.49	9.0%	105-110	0	0.0%	165-170	0	0.0%
50-55	19.44	9.0%	110-115	0	0.0%	170-175	0	0.0%
55-60	18.64	8.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	86	39.8%
0-60	163	75.1%
0-90	217	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	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07	64.07
5	62.42	63.91	64.65	64.29	63.84	64.29	64.65	63.91	62.42	63.91	64.65	64.29	63.84	64.29	64.65	63.91
10	62.01	63.46	64.15	63.78	63.28	63.78	64.15	63.46	62.01	63.46	64.15	63.78	63.28	63.78	64.15	63.46
15	61.27	62.71	63.32	62.94	62.42	62.94	63.32	62.71	61.27	62.71	63.32	62.94	62.42	62.94	63.32	62.71
20	60.05	61.46	61.89	61.47	60.96	61.47	61.89	61.46	60.05	61.46	61.89	61.47	60.96	61.47	61.89	61.46
25	58.58	59.99	60.15	59.74	59.24	59.74	60.15	59.99	58.58	59.99	60.15	59.74	59.24	59.74	60.15	59.99
30	56.79	58.32	58.27	57.81	57.41	57.81	58.27	58.32	56.79	58.32	58.27	57.81	57.41	57.81	58.27	58.32
35	54.73	56.16	56.07	55.48	55.09	55.48	56.07	56.16	54.73	56.16	56.07	55.48	55.09	55.48	56.07	56.16
40	51.72	53.22	53.13	52.39	52.07	52.39	53.13	53.22	51.72	53.22	53.13	52.39	52.07	52.39	53.13	53.22
45	48.98	50.47	50.35	49.46	49.09	49.46	50.35	50.47	48.98	50.47	50.35	49.46	49.09	49.46	50.35	50.47
50	45.80	47.31	47.21	46.14	45.72	46.14	47.21	47.31	45.80	47.31	47.21	46.14	45.72	46.14	47.21	47.31
55	41.99	43.34	43.33	42.20	41.76	42.20	43.33	43.34	41.99	43.34	43.33	42.20	41.76	42.20	43.33	43.34
60	37.20	38.44	38.49	37.33	36.96	37.33	38.49	38.44	37.20	38.44	38.49	37.33	36.96	37.33	38.49	38.44
65	31.59	32.67	32.76	31.60	31.36	31.60	32.67	32.67	31.59	32.67	32.76	31.60	31.36	31.60	32.76	32.67
70	24.98	25.82	25.87	24.84	24.74	24.84	25.82	25.87	24.98	25.82	25.87	24.84	24.74	24.84	25.87	25.82
75	17.37	17.91	17.92	17.23	17.21	17.23	17.92	17.91	17.37	17.91	17.92	17.23	17.21	17.23	17.92	17.91
80	9.43	9.92	9.93	9.50	9.51	9.50	9.93	9.92	9.43	9.92	9.93	9.50	9.51	9.50	9.93	9.92
85	2.73	3.01	3.01	2.87	2.89	2.87	3.01	3.01	2.73	3.01	3.01	2.87	2.89	2.87	3.01	3.01
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

	0	45	90
0	16900	16900	16900
45	18280	18790	18320
55	19320	19930	19210
65	19720	20450	19580
75	17710	18270	17540
85	8276	9104	8737

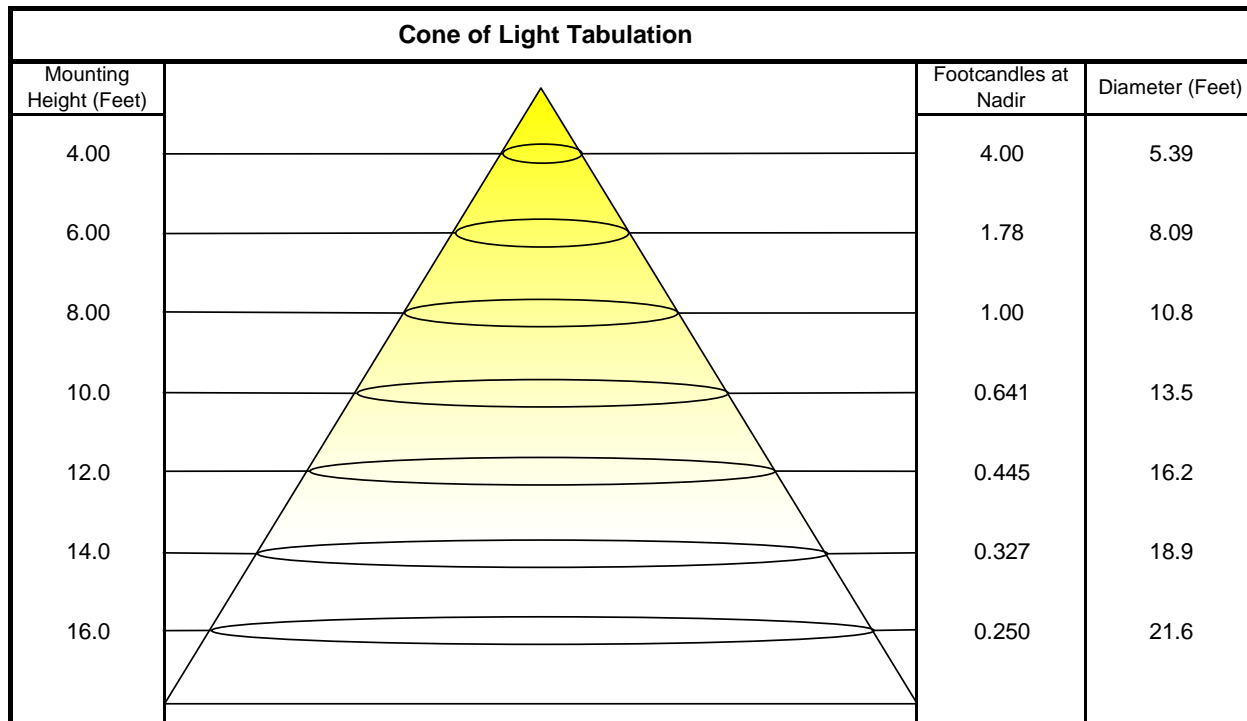




### Utilization of Lumens - Zonal Cavity Method

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	258	258	258	258	252	252	252	252	241	241	241	231	231	231	221	221	221	217
1	234	223	214	205	228	218	209	201	209	202	195	201	195	189	193	188	183	179
2	212	193	177	164	206	189	174	162	181	169	158	173	163	154	167	158	151	146
3	192	168	149	134	186	164	147	133	158	143	130	151	139	128	146	135	126	121
4	175	147	127	112	170	144	126	111	139	123	110	134	120	108	129	117	107	102
5	160	131	110	95	155	128	109	95	124	107	94	119	104	93	115	102	92	87
6	147	117	97	82	143	115	96	82	111	94	81	107	92	80	104	90	80	75
7	136	106	86	72	132	104	85	72	101	84	71	97	82	71	94	81	70	66
8	127	96	77	64	123	95	76	64	92	75	63	89	74	63	86	73	62	58
9	118	88	70	57	115	87	69	57	84	68	57	82	67	56	79	66	56	52
10	110	81	63	52	108	80	63	51	78	62	51	76	61	51	74	60	51	47

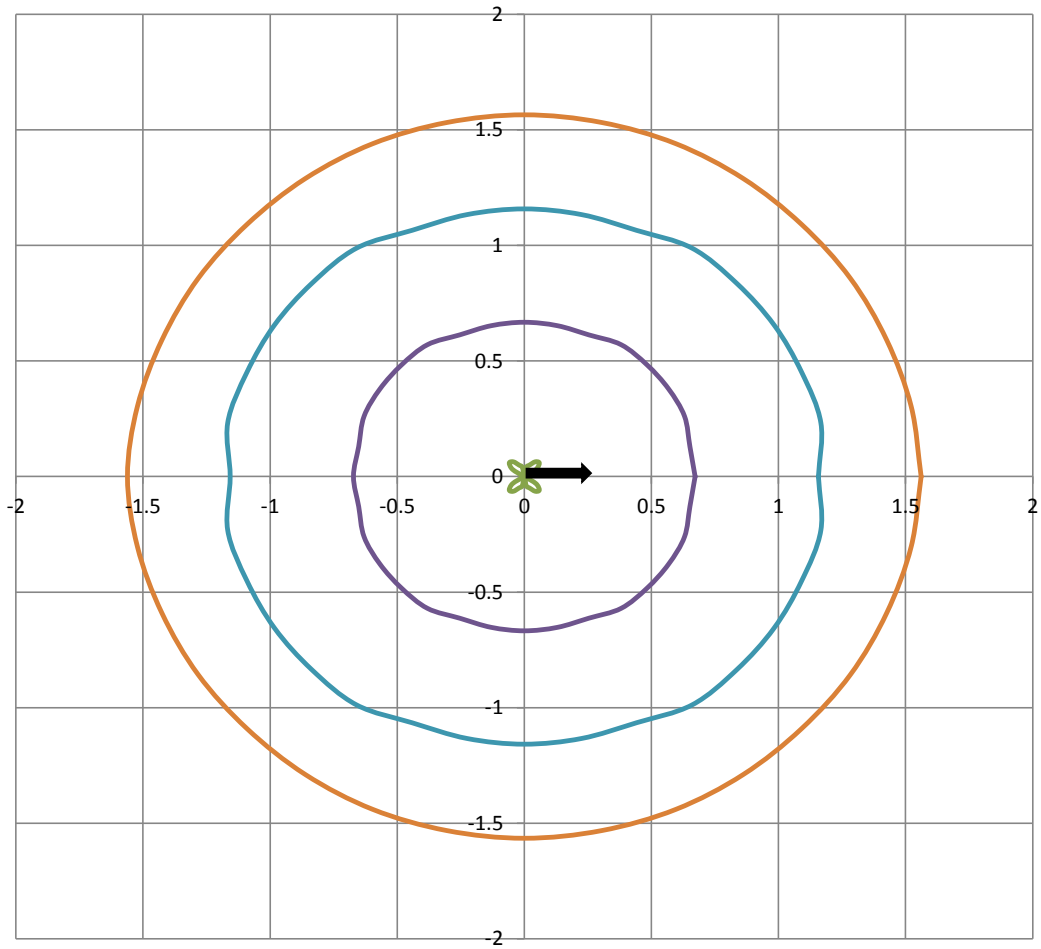
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	64.07 Candela
Central Cone Intensity:	64 Candela
Beam Flux:	180.0 Lumens
Beam Angle (0-180):	129.2 Degrees
Beam Angle (90-270):	128.9 Degrees
Field Angle (0-180):	164.3 Degrees
Field Angle (90-270):	164.4 Degrees





# ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

