AcuHue™ CC Series

Flexible RGBW LED Strip

The SIRS-E® **AcuHue™** CC RGBW LED strip series, utilizes Constant Current Control to provide for ideal color consistency with no brightness loss or voltage drop through the use of high quality integrated circuits embedded directly on the flexible strip. **AcuHue™** CC has the ability to produce billions of color variations.

Easily mountable utilizing 3M VHB Aero-Grade tape, engineered to dissipate heat and reduce voltage drop via 4 oz flexible PCB.

- **Max run of 32ft /10m** with no brightness loss, **powered only from one end**
- Increased Luminous Flux **443 lm/ft**
- Improved Luminous Efficacy **+125 lm/W**
- Minimal Power Consumption **6.5 W/ft**

The **AcuHue™** series provides solutions for an endless set of applications including commercial, residential, stage & studio, theatrical, and specialized lighting designs.

Delivering superior LED strip lighting with a proven record spanning more than a decade without electrical, chromatic, or color rendering issues. SIRS-E® continues to lead the market place in stability, reliability, and efficiency of LED lighting and lighting control systems.

030819

3307 West Street Rosenberg, TX 77471 USA - (281) 324-0908

AcuHue™ CC Series
AcuHue-24CC55-XX16 Datasheet

Customer Name | Project Name | Part Number

Flexible RGBW LED Strip

Description

AcuHue™ RGBW LED strip lights allow you to create billions of colors by mixing red, green, blue and a 4th color variant LED diode. Utilizing IC regulators embedded directly on to the high quality flexible LED strip, this new line is able to provide ideal color consistency with no luminous flux loss throughout its run. AcuHue™ consists of 14mm wide, 4 oz density copper PCB, fitted with 3M VHB adhesive tape for secure installation.
Voltage dimmable and comaptible with SIRS-E®'s line of constant voltage DMX-CON decoders and drivers.

Product Specifications

Input Voltage	24 V DC	Cuttable Segments	3.3 in (83 mm) for 24V
Limiting Control Method	CC - Current Control	Reel Length	16.4 ft / 5 m
Power Consumption	6.9 W/ft	Max Run Length	32 ft / 10m, no luminous flux loss[3]
LED Chip Type	High Quality SMD 5050 4-Diode	Segment Width	0.56 in (14 mm) for IP40 / 0.68 in (17.33 mm) for IP68
LED Density	22 LEDs/ft / 72 LEDs/m	Luminous Flux Maintenance	75,000 hrs[2]
Board Type/Color	4 oz Density Copper, White PCB	Dimming	DMX PWM, RF PWM, 0-10V, MLV, Incandescent
Beam Angle	120°	Environmental	IP 40 - Indoor, Dry / IP 68 - Damp, Wet
Operating Temperature	-20°F to 120°F	Warranty	5 Years Limited
Mounting	Non-Porous: 3M VHB Adhesive Mounting Tape	Certifications	c UL us UL Listed, E479339

Product Photometrics - Red, Green and Blue Diodes

Color Diode	Peak Wavelength (nm)	Dominant Wavelength (nm)	CIE (x,y)	Luminous Flux (lm/ft)	Luminous Efficacy (lm/W)
Red	632.0	621.6	(0.6938, 0.3053)	64.5	30.0
Green	516.2	521.5	(0.1402, 0.7244)	166.5	85.6
Blue	462.5	466.7	(0.1369, 0.0520)	33.6	17.3

Product Photometrics - White Diode Only

Nominal CCT (K)	Luminous Flux (lm/ft)	Luminous Efficacy (lm/W)	CIE (x,y)	Duv_1	CRI	TM-30-15 Fidelity (Rf)	TM-30-15 Gamut (Rg)
5500 K	199	102.4	(0.3318, 0.3440)	+0.0017	82.8	81.0	96.5

Product Photometrics - All Four Colors at Full Intensity

Nominal CCT (K)	Luminous Flux (lm/ft)	Luminous Efficacy (lm/W)	CIE (x,y)	Duv_1	CRI	TM-30-15 Fidelity (Rf)	TM-30-15 Gamut (Rg)
13197 K	443	56.4	(0.2639, 0.2784)	+0.0056	74.3	NA	NA

1 - Duv Chromaticity Consistency is throughout the run length. Typically below 1-step MacAdam Ellipse.
2 - After 75,000 hrs: 30% Luminous Flux loss, 10% Chromaticity change, as per LM-80-2015
3 - Powered only from one end.

3307 West Street Rosenberg, TX 77471 USA - (281) 324-0908

Ordering Guide

Series	Voltage	Control	CCT[1] / λ[2] *	IP	Run Length
AcuHue™	24	CC	55	XX	16
			27	40	
			55	68	
			590		

[1] CCT - Correlated Color Temperature, represented by the first 2 digits of the nominal CCT.
[2] λ - Peak Wavelength, represented by the 3 digits of the color wavelength.
* CCT / λ - applicable on AcuVivid and AcuHue series only.

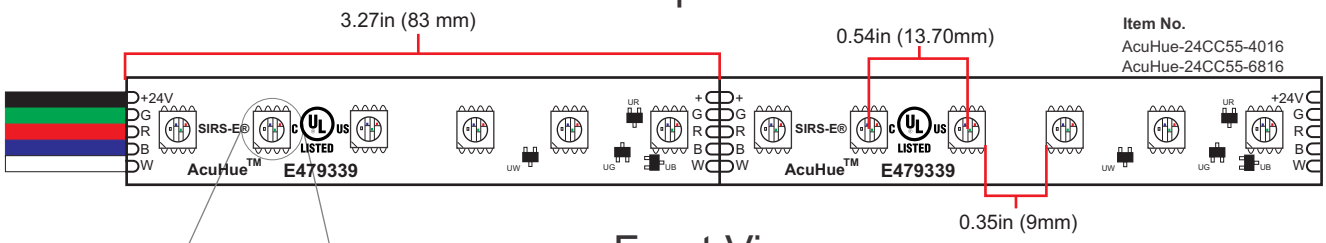
Product Country of Origin

Product Engineering & Design	USA
Assembled	China Preassembled / USA Final Assembly
QC Quality Control	USA
Product Customization	USA
Technical Support	USA

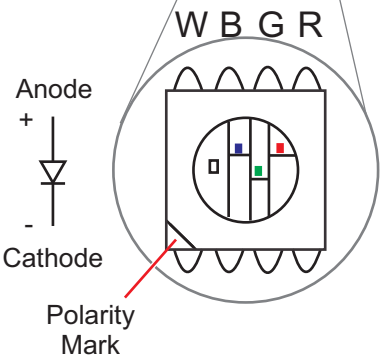
[1] 27 - RGBW 2700 K
[1] 55 - RGBW 5500 K
[2] 590 - RGBA Amber 590 nm

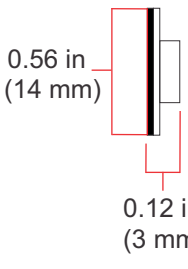
Mechanical Dimensions

Top View

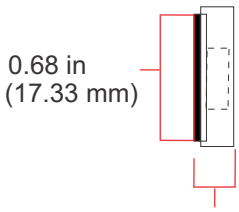


Front View





AcuHue-24CV27-4016
AcuHue-24CV55-4016
AcuHue-24CV590-4016



AcuHue-24CV27-6816
AcuHue-24CV55-6816
AcuHue-24CV590-6816

3M VHB Adhesive Tape

Weight

Product Weight: 6.2 oz,16.4 ft Reel
IP40, Without Packaging.

19.3 oz,16.4 ft Reel
IP68, Without Packaging.

Notes

- A good technique to minimize brightness loss and increase lumen output on CV LED Strips is to power the strip on both sides.
- LED electrical and photometric characteristics change with the manufacturing batch/bin date. Approximately 3-Step MacAdam Ellipses between batches.
- We reserve the right to change any data without prior notice.

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Accessories Compatible

This list shows some of our most sellable accessories compatible for this product. For a complete list, please visit our website.

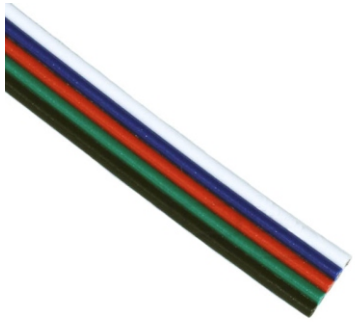
Meanwell 12V & 24V PSUs
LED-PS12V-60W-UL
LED-PS24V-90W-UL

SIRS-E DMX Controllers
DMX-CON4V2-C2

SIRS-E RF Controllers
RF-MZRX-RGBW

DMX-CON4-C2

SIRS-E Waterproof
Accessories



E RGBW Wire Leads

About Us

LED LIGHTING AND DMX CONTROL

SIRS-E /**s**emiconductor • **i**llumination • **r**esearch • **s**olutions /

In 2004, SIRS-E began research into the use of high powered LED components to be applied in direct lighting fixtures and LED strips.
In 2005, SIRS-E developed the RGB HPL01 – 12 watt (60 lumens per watt efficiency) RGB lighting fixture controlled via DMX using LumiLEDS, one of the first high powered LEDs eventually acquired by Phillips.
Included in early research solutions, was the development and testing of many different LED strips intended to be used for direct RGB lighting and effects applications.
This was the beginning of what we now know as SIRS – Electronics.

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SIRS Electronics Inc

Catalog Number

AcuHue-24CC55-4016 - ALL COLORS

Electrical Test Conditions						
Temp	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	24.00 VDC	0.3271 A	7.851 W	N/A	N/A	N/A

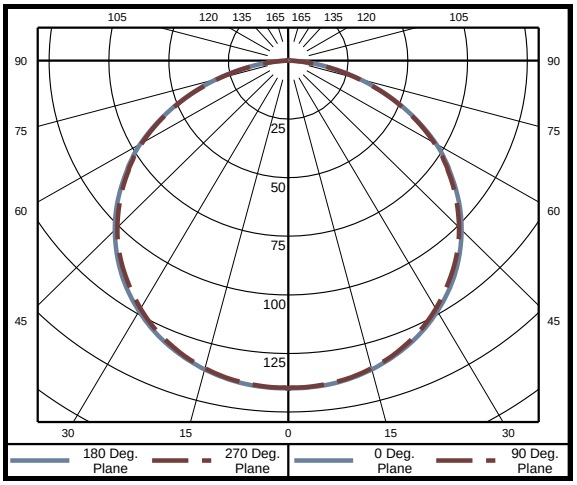
Summary of Results	
Total Lumen Output	442.9 Lumens
Luminaire Efficacy	56.4 lm/w
Maximum Candela	142 Candela
CCT	13197 K
CRI	74.3
Duv	0.0056
TM-30 Rf	0.0
TM-30 Rg	0.0

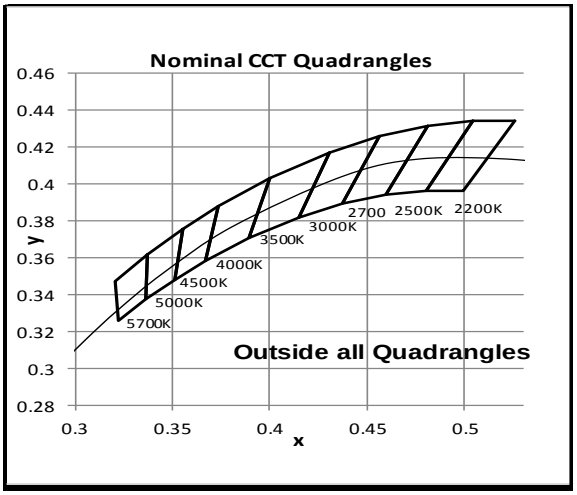
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	111	25.4%
0-40	185	42.2%
0-60	338	77.0%
0-90	439	99.8%
40-90	253	57.7%
60-90	100	22.9%
90-180	1	0.2%
0-180	439	100.0%

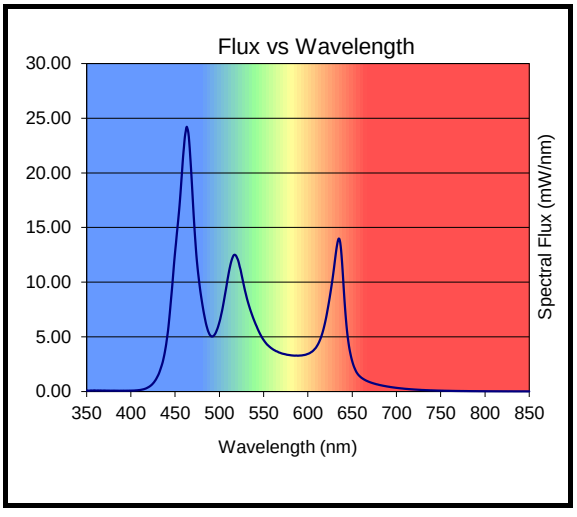
Spacing Criteria	
0-180	1.32
90-270	1.32

Average Luminance cd/m²	
Vertical Angle	Horizontal Angle 0°
0	33440
45	34640
55	34390
65	33240
75	29210
85	21270

Cone of Light Tabulation		
Mounting Height (Ft)	Footcandles at Nadir	Diameter (Ft)
4.00	8.76	5.25
6.00	3.90	7.88
8.00	2.19	10.5
10.0	1.40	13.1
12.0	0.974	15.8
14.0	0.715	18.4
16.0	0.548	21.0







Intensity (Candlepower) Summary		
Angle	Mean CP	Lumens
0	140	
5	140	13
10	139	
15	136	39
20	133	
25	129	60
30	124	
35	118	74
40	111	
45	102	79
50	93	
55	83	74
60	72	
65	59	58
70	45	
75	32	33
80	18	
85	7	9
90	1	

Color Rendering Index Details	
Ra (CRI)	74.3
R1	66.7
R2	79.7
R3	88.4
R4	75.9
R5	76.8
R6	79.1
R7	77.5
R8	50.7
R9	-58
R10	52.8
R11	69.3
R12	67.6
R13	67.2
R14	90.6

Chromaticity Coordinates	
Chromaticity (x)	0.2639
Chromaticity (y)	0.2784
Chromaticity (u)	0.1816
Chromaticity (v)	0.2873
Chromaticity (u')	0.1816
Chromaticity (v')	0.4310
Duv	0.0056

Testing was performed in accordance with LM-79-08

The results contained in this summary pertain only to report #11765622.05

UL Verification Services Inc.
7036 Snowdrift Road
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610-774-1300

ACCREDITED

NVLAP LAB CODE 201042-0

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, Suite 5
Rosenburg, TX 77471
United States

Catalog Number

AcuHue-24CC55-4016 - RED

Order Number
11765622
Test Number
11765622.01

Test Date

2017-05-15

Prepared By

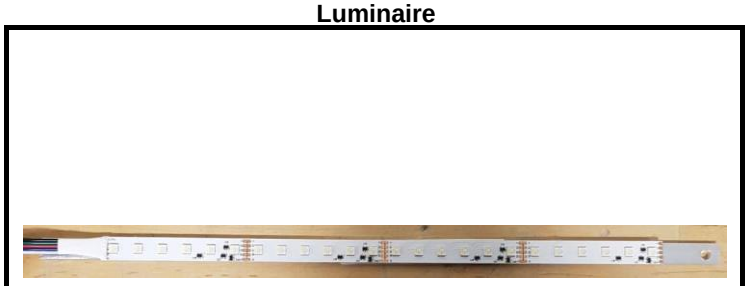
Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

Luminaire Description: RGB LED strip on formed aluminum with no lens enclosure - 1' length (304.8mm)
Lamp: 24 RGB LEDs
Mounting: Surface – Ceiling
Ballast/Driver: None

Luminaire



Summary of Results

Radiant Flux:	302 mW
Luminous Flux:	60.45 lm
Luminaire Efficacy:	30.0 lm/W
Chromaticity (x):	0.6938
Chromaticity (y):	0.3053
Chromaticity (u):	0.5261
Chromaticity (v):	0.3472
Duv:	0.0064

Test Conditions

Test Temperature:	25.0	°C
Voltage:	24.00	VDC
Current:	0.08394	A
Power:	2.015	W

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

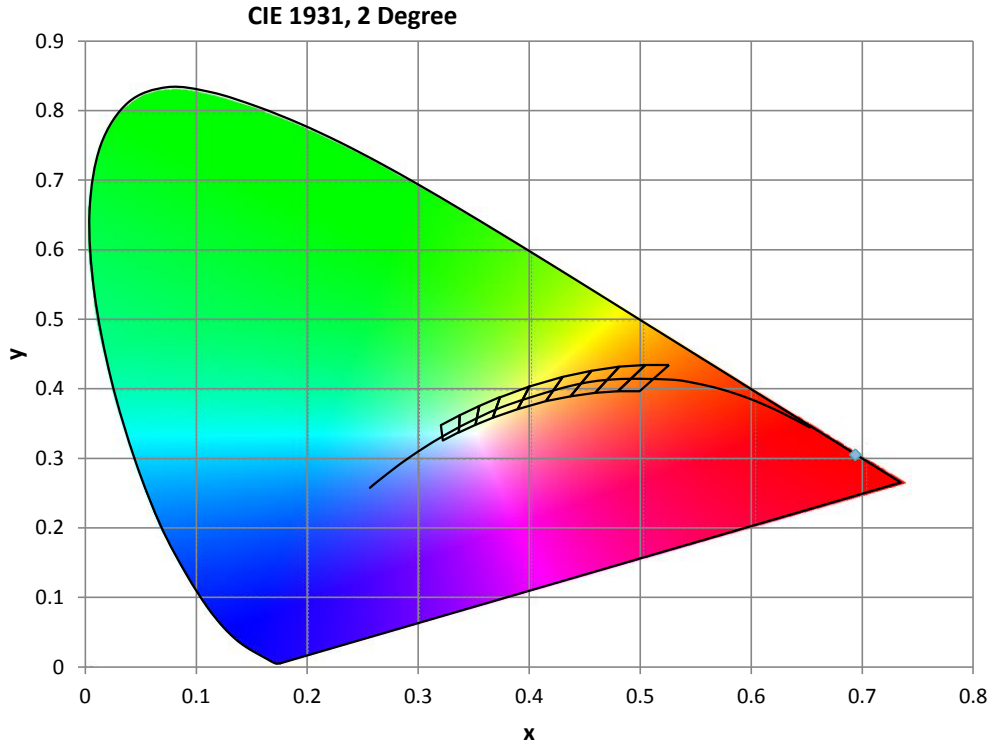
Color Quality - Integrating Sphere

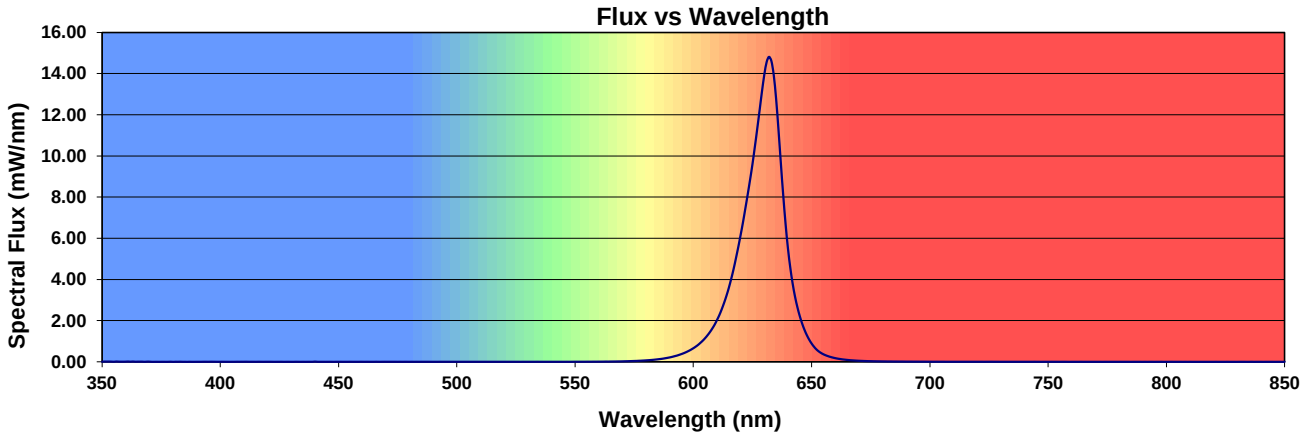
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	24.0 VDC	0.08394 A	2.015 W	N/A	N/A	N/A

Summary of Results

Total Output:	60 Lumens	**Chromaticity (x):**	0.6938
Efficacy:	30.0 lm/w	**Chromaticity (y):**	0.3053
Peak Wavelength:	632 nm	**Chromaticity (u'):**	0.5261
Dominant Wavelength:	621.6 nm	**Chromaticity (v'):**	0.5208
S/P Ratio:	0.059	**Duv:**	0.0064





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Allentown, PA 18106
610-774-1300

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NVLAP LAB CODE 201042-0

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, Suite 5
Rosenburg, TX 77471
United States

Catalog Number

AcuHue-24CC55-4016 - GREEN

Order Number
11765622
Test Number
11765622.02

Test Date

2017-05-15

Prepared By

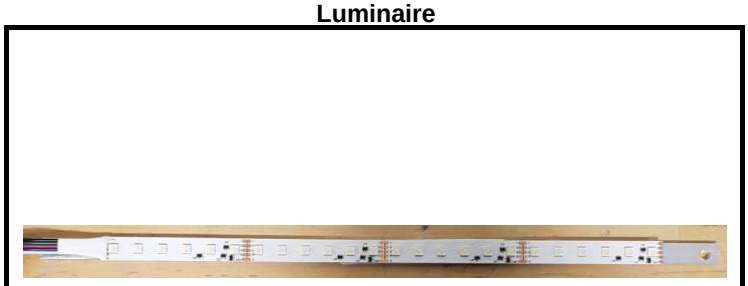
Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

Luminaire Description: RGB LED strip on formed aluminum with no lens enclosure - 1' length (304.8mm)
Lamp: 24 RGB LEDs
Mounting: Surface – Ceiling
Ballast/Driver: None

Luminaire



Summary of Results

Radiant Flux:	367.4 mW
Luminous Flux:	166.5 lm
Luminaire Efficacy:	85.6 lm/W
Chromaticity (x):	0.1402
Chromaticity (y):	0.7244
Chromaticity (u):	0.0491
Chromaticity (v):	0.3808
Duv:	0.1649

Test Conditions

Test Temperature:	24.9	°C
Voltage:	24.01	VDC
Current:	0.08095	A
Power:	1.944	W

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

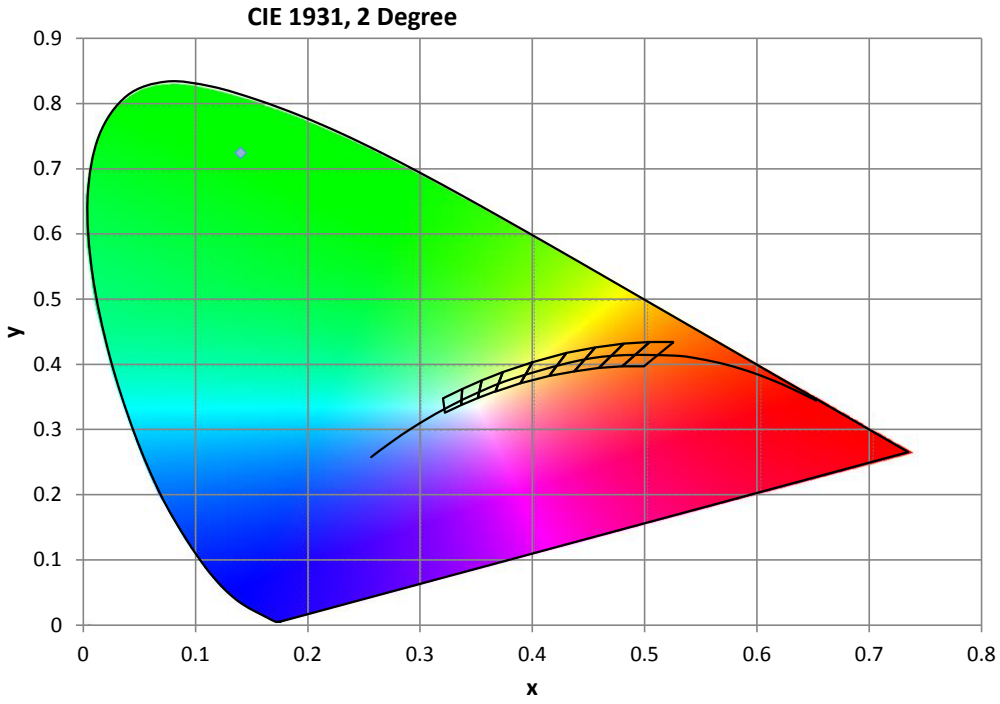
Color Quality - Integrating Sphere

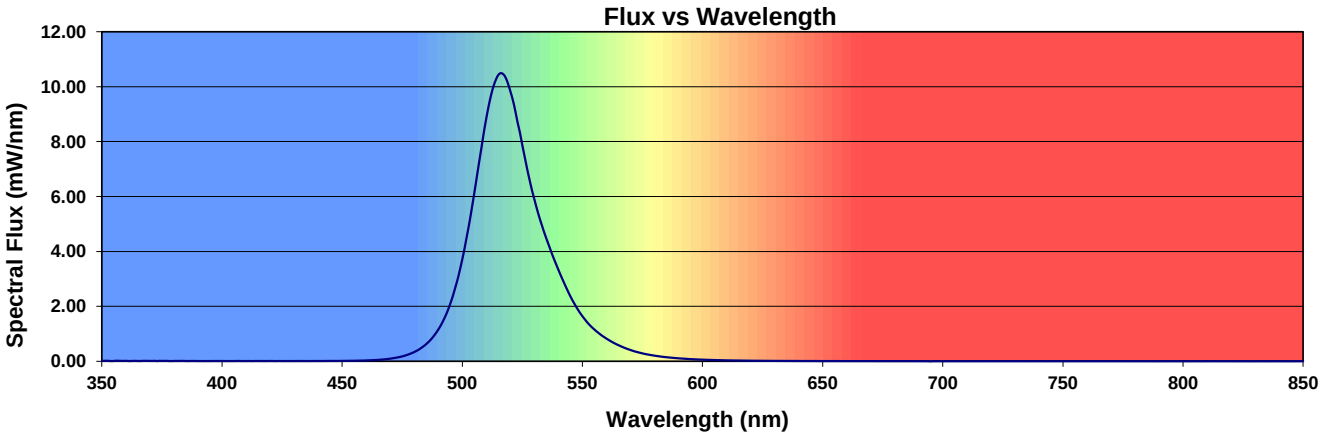
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	24.01 VDC	0.08095 A	1.944 W	N/A	N/A	N/A

Summary of Results

Total Output:	167 Lumens	**Chromaticity (x):**	0.1402
Efficacy:	85.6 lm/w	**Chromaticity (y):**	0.7244
Peak Wavelength:	516.2 nm	**Chromaticity (u'):**	0.0491
Dominant Wavelength:	521.5 nm	**Chromaticity (v'):**	0.5713
S/P Ratio:	3.186	**Duv:**	0.1649





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Allentown, PA 18106
610-774-1300

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NVLAP LAB CODE 201042-0

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, Suite 5
Rosenburg, TX 77471
United States

Catalog Number

AcuHue-24CC55-4016 - BLUE

Order Number
11765622
Test Number
11765622.03

Test Date

2017-05-15

Prepared By

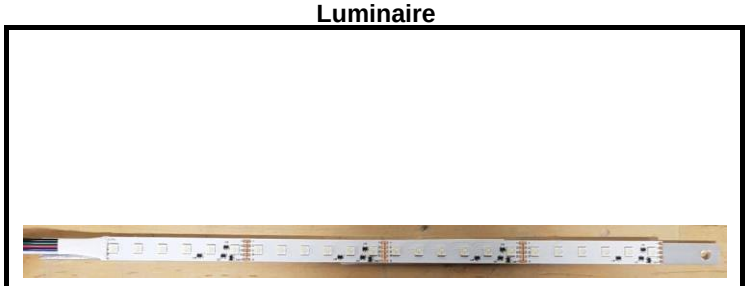
Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

Luminaire Description: RGB LED strip on formed aluminum with no lens enclosure - 1' length (304.8mm)
Lamp: 24 RGB LEDs
Mounting: Surface – Ceiling
Ballast/Driver: None

Luminaire



Summary of Results

Radiant Flux:	549.7 mW
Luminous Flux:	33.58 lm
Luminaire Efficacy:	17.3 lm/W
Chromaticity (x):	0.1369
Chromaticity (y):	0.052
Chromaticity (u):	0.1635
Chromaticity (v):	0.0932
Duv:	0.0324

Test Conditions

Test Temperature:	24.9	°C
Voltage:	24.00	VDC
Current:	0.08102	A
Power:	1.944	W

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

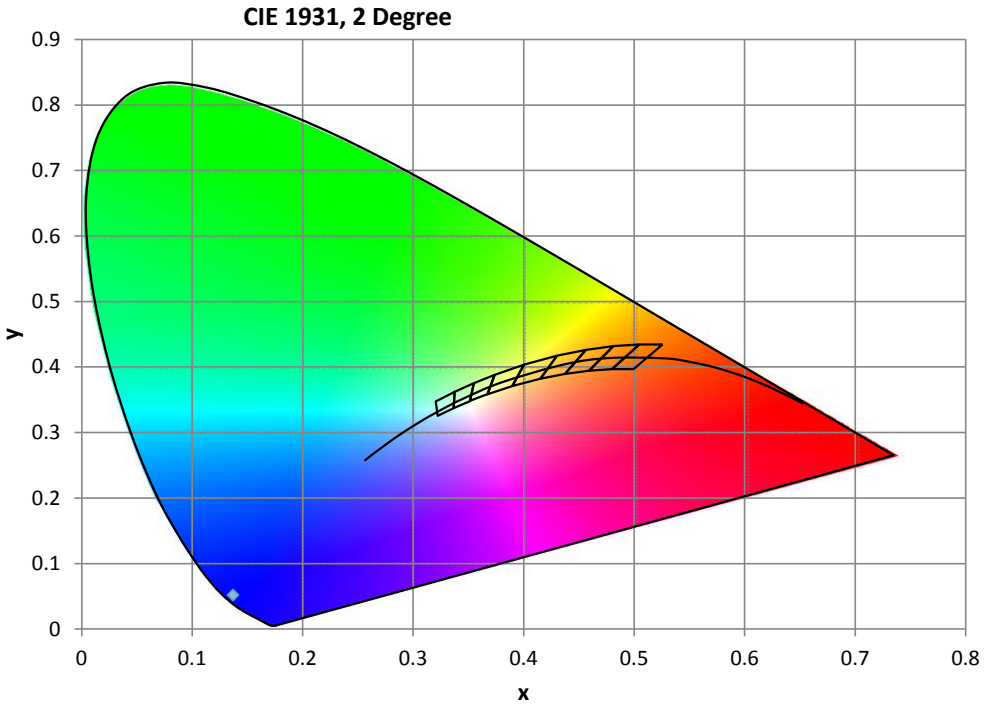
Color Quality - Integrating Sphere

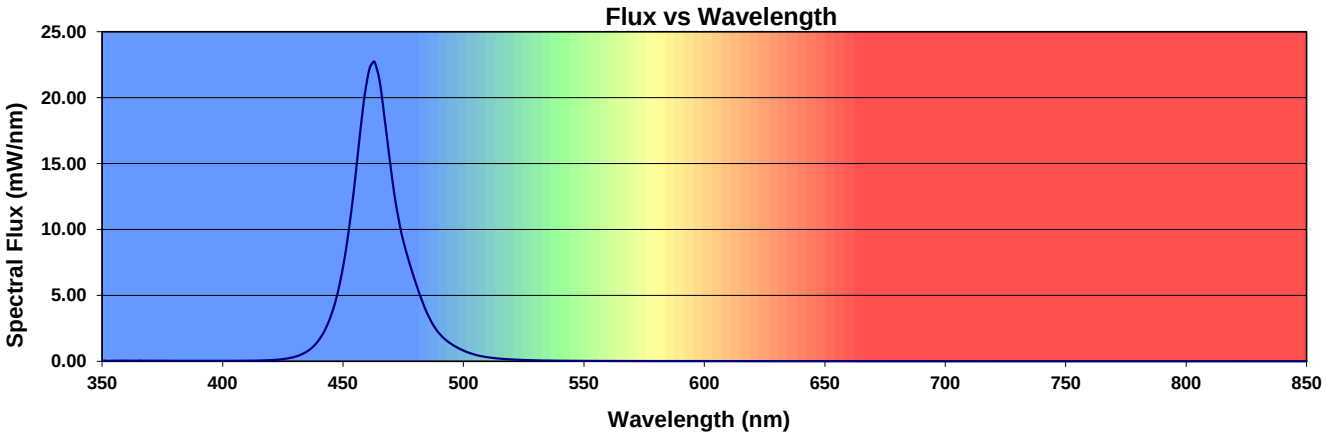
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	24.0 VDC	0.08102 A	1.944 W	N/A	N/A	N/A

Summary of Results

Total Output:	34 Lumens	**Chromaticity (x):**	0.1369
Efficacy:	17.3 lm/w	**Chromaticity (y):**	0.0520
Peak Wavelength:	462.5 nm	**Chromaticity (u'):**	0.1635
Dominant Wavelength:	466.7 nm	**Chromaticity (v'):**	0.1398
S/P Ratio:	17.1	**Duv:**	0.0324





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610-774-1300

ACCREDITED

NVLAP LAB CODE 201042-0

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, Suite 5
Rosenburg, TX 77471
United States

Catalog Number

AcuHue-24CC55-4016 - WHITE

Order Number
11765622
Test Number
11765622.04

Test Date

2017-05-15

Prepared By

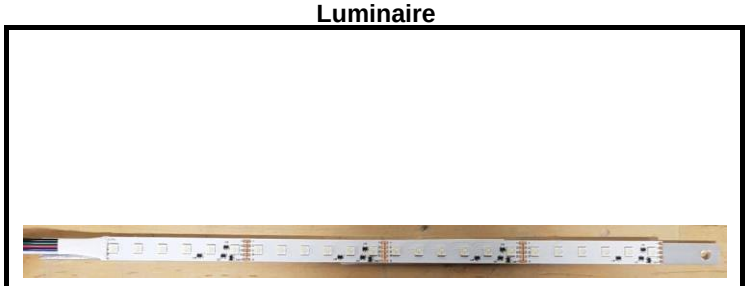
Kevin Rodriguez, Technician

Approved By

Justin Benner, Project Handler

Luminaire Description: RGB LED strip on formed aluminum with no lens enclosure - 1' length (304.8mm)
Lamp: 24 RGB LEDs
Mounting: Surface – Ceiling
Ballast/Driver: None

Luminaire



Summary of Results	
Radiant Flux:	628.5 mW
Luminous Flux:	199.2 lm
Luminaire Efficacy:	102.4 lm/W
CCT:	5526 K
CRI (Ra):	82.8
Chromaticity (x):	0.3318
Chromaticity (y):	0.3440
Chromaticity (u):	0.2053
Chromaticity (v):	0.3193
Duv:	0.0017

Test Conditions		
Test Temperature:	25.1	°C
Voltage:	23.99	VDC
Current:	0.08108	A
Power:	1.945	W

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

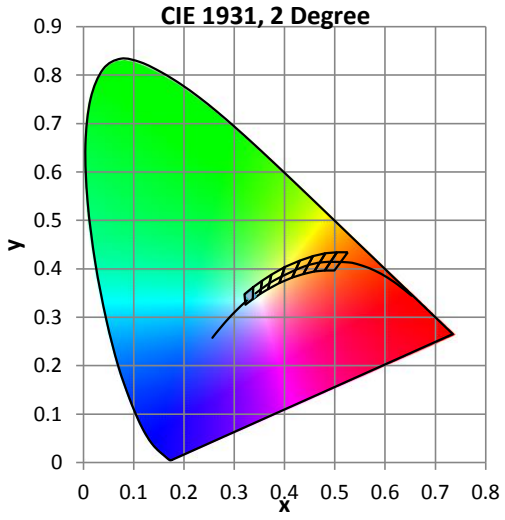
Color Quality - Integrating Sphere

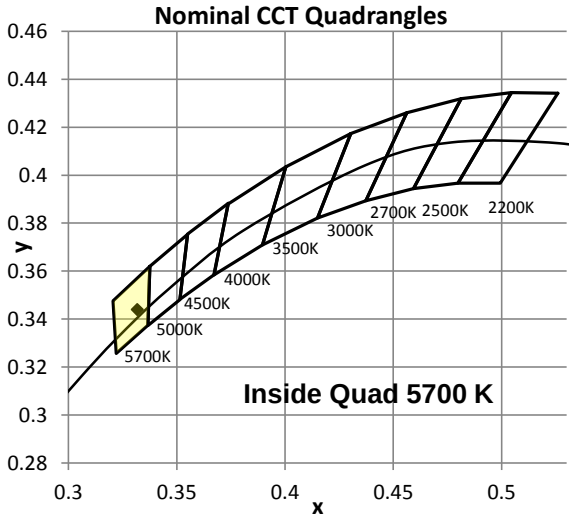
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.1 °C	23.99 VDC	0.08108 A	1.945 W	N/A	N/A	N/A

Summary of Results

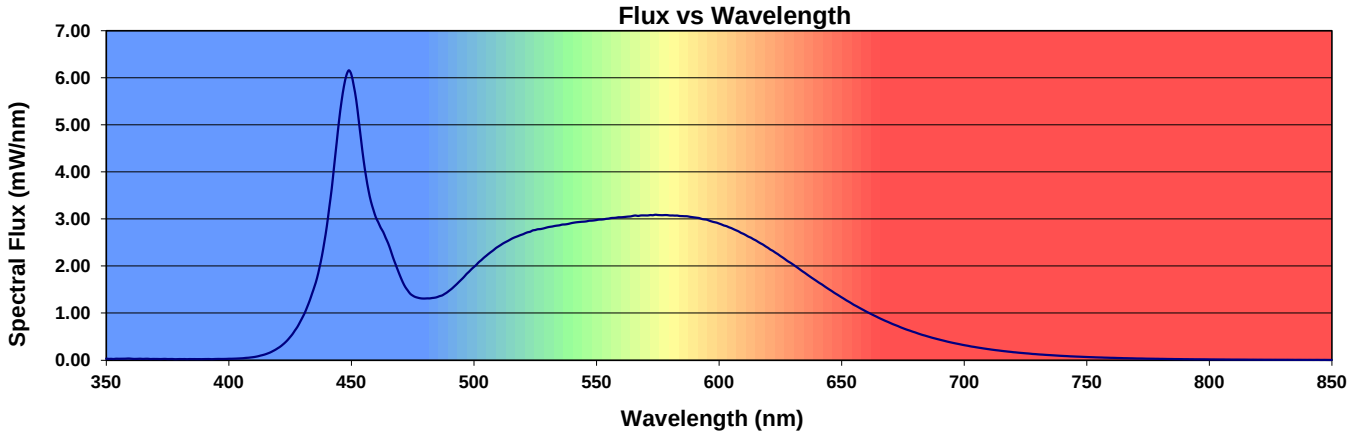
Total Output:	199 Lumens	**Chromaticity (x):**	0.3318
Efficacy:	102.4 lm/w	**Chromaticity (y):**	0.3440
CCT:	5526 K	**Chromaticity (u'):**	0.2053
CRI (Ra):	82.8	**Chromaticity (v'):**	0.4789
CRI (R9):	7.7	**TM-30 Rf:**	81
Peak Wavelength:	449 nm	**TM-30 Rg:**	96.5
Dominant Wavelength:	546.9 nm	**Duv:**	0.0017
S/P Ratio:	2.047		



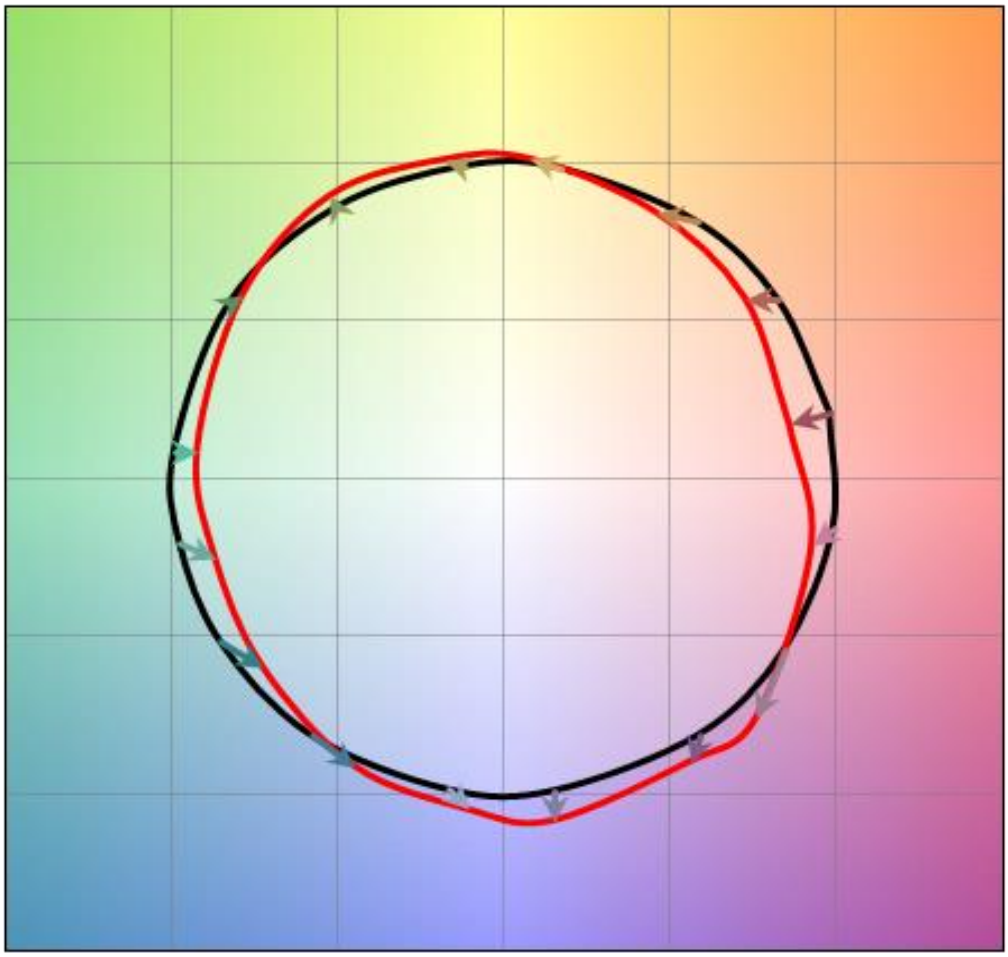


Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
82.8	81.4	87.0	90.4	83.5	82.2	81.7	87.0	68.9	7.7	68.6	83.0	60.8	82.7	94.8



COLOR VECTOR GRAPHIC



Reference Source Test Source

HUE ANGLE ANALYSIS															
Hue Bin (j)	Count (m)	Average of Test SPD		Average of Ref SPD		Average ΔE	Average θ	Color Distortion Icon Parameters						$R_{fh,j}$	Change of Chroma
		a'	b'	a'	b'			da_relative	db_relative	path_x ref	path_y ref	path_x	path_y		
1	7	21.22	4.34	24.20	5.32	3.484	0.21	-0.12	-0.04	0.98	0.21	0.86	0.17	74	-13%
2	6	16.57	12.31	18.84	12.12	2.417	0.60	-0.10	0.01	0.82	0.57	0.72	0.58	82	-8%
3	8	10.65	21.47	13.80	20.66	3.393	0.95	-0.13	0.03	0.58	0.82	0.45	0.85	74	-4%
4	8	1.95	22.81	4.00	22.14	2.285	1.40	-0.09	0.03	0.17	0.99	0.08	1.02	83	1%
5	9	-2.97	20.39	-1.75	19.98	1.891	1.69	-0.06	0.02	-0.12	0.99	-0.18	1.01	86	3%
6	8	-10.55	18.13	-10.19	17.37	1.078	2.10	-0.02	0.04	-0.51	0.86	-0.53	0.90	92	4%
7	5	-16.98	12.71	-17.80	12.24	1.096	2.55	0.04	0.02	-0.83	0.56	-0.79	0.58	92	-2%
8	5	-22.51	2.33	-24.22	2.20	1.819	3.06	0.07	0.01	-1.00	0.09	-0.93	0.09	86	-7%
9	7	-13.90	-3.91	-15.60	-3.17	2.029	-2.94	0.11	-0.05	-0.98	-0.20	-0.87	-0.25	85	-10%
10	5	-17.05	-13.32	-19.95	-11.55	3.592	-2.60	0.13	-0.08	-0.86	-0.52	-0.73	-0.59	73	-6%
11	9	-10.00	-21.42	-13.10	-19.10	4.011	-2.20	0.13	-0.10	-0.59	-0.81	-0.45	-0.91	70	1%
12	2	-2.19	-22.06	-3.40	-20.76	1.946	-1.74	0.06	-0.06	-0.17	-0.99	-0.11	-1.05	85	5%
13	6	2.23	-17.22	2.36	-15.70	1.904	-1.42	-0.01	-0.10	0.15	-0.99	0.14	-1.08	86	9%
14	3	12.48	-20.27	13.17	-18.31	2.358	-0.94	-0.03	-0.09	0.59	-0.81	0.56	-0.90	82	6%
15	6	11.52	-11.34	12.78	-8.09	3.814	-0.57	-0.08	-0.21	0.84	-0.54	0.76	-0.76	71	5%
16	5	21.34	-4.68	22.84	-3.33	2.166	-0.15	-0.06	-0.06	0.99	-0.15	0.92	-0.21	84	-5%

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

ACCREDITED

NVLAP LAB CODE 201042-0

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, Suite 5
Rosenburg, TX 77471
United States

Catalog Number

AcuHue-24CC55-4016 - ALL COLORS

Order Number
11765622
Test Number
11765622.05

Test Date

2017-05-16

Prepared By

Bhavik Shah, Senior Technician

Approved By

Justin Benner, Project Handler

Table of Contents

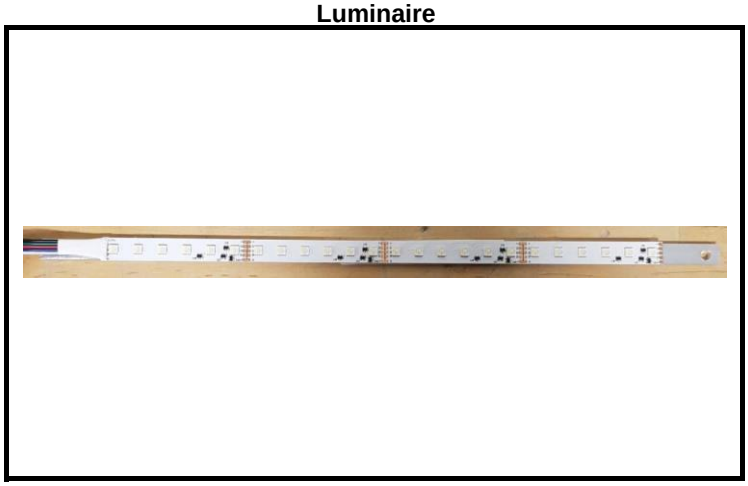
Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.

Absorption correction was employed for Sphere measurement

Luminaire Description: RGB LED strip on formed aluminum with no lens enclosure - 1' length (304.8mm)
Lamp: 24 RGB LEDs
Mounting: Surface – Ceiling
Ballast/Driver: None

Luminaire



Luminaire Characteristics

Luminous Length:	13.00 in.
Luminous Width:	0.5000 in.

Summary of Results

Integrating Sphere

Luminous Flux:	443 Lumens
Efficacy:	56.4 lm/w
CCT:	13197 K
CRI (Ra):	74.3

Distribution

Total Luminaire Output:	439.4 Lumens
Luminaire Efficacy:	56 lm/w
Maximum Candela:	142 Candela

Electrical Data at 24 VDC

Test Temperature:	25.7 °C
Voltage:	24.10 VDC
Current:	0.3270 A
Power:	7.856 W

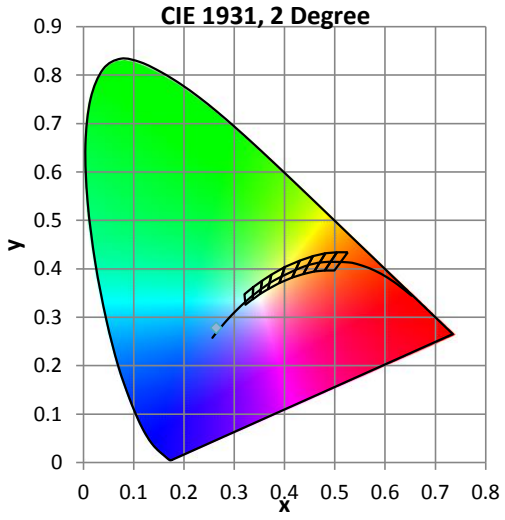
Color Quality - Integrating Sphere

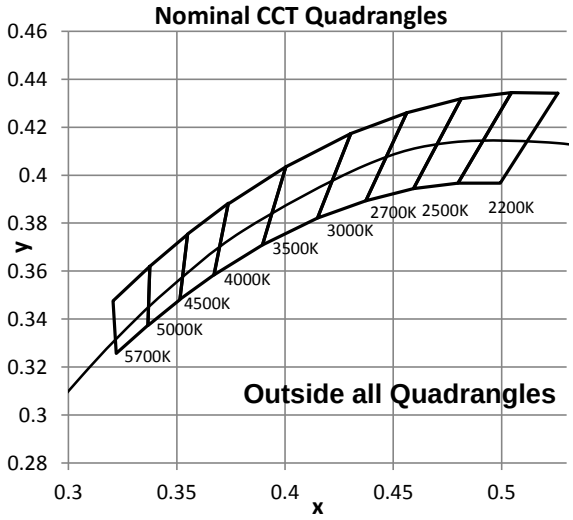
Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.7 °C	24.10 VDC	0.3270 A	7.856 W	N/A	N/A	N/A

Summary of Results

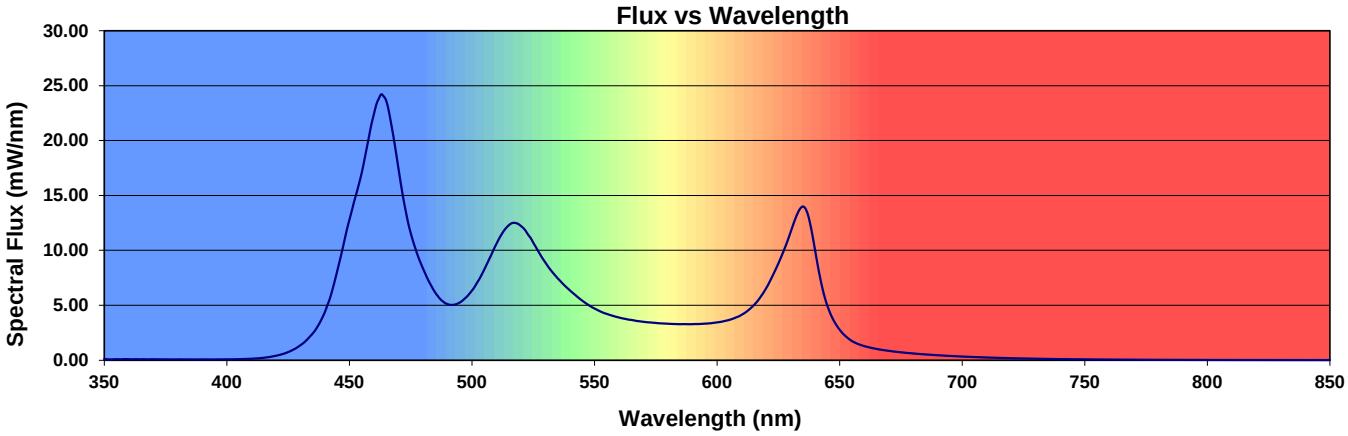
Total Output:	443	Lumens	**Chromaticity (x):**	0.2639
Efficacy:	56.4	lm/w	**Chromaticity (y):**	0.2784
CCT:	13197	K	**Chromaticity (u'):**	0.1816
CRI (Ra):	74.3		**Chromaticity (v'):**	0.4310
CRI (R9):	-58.0		**TM-30 Rf:**	0
Peak Wavelength:	463.3	nm	**TM-30 Rg:**	0
Dominant Wavelength:	480.6	nm	**Duv:**	0.0056
S/P Ratio:	3.38			





Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
74.3	66.7	79.7	88.4	75.9	76.8	79.1	77.5	50.7	-58.0	52.8	69.3	67.6	67.2	90.6



Distribution - Goniophotometer

Distribution Test Conditions

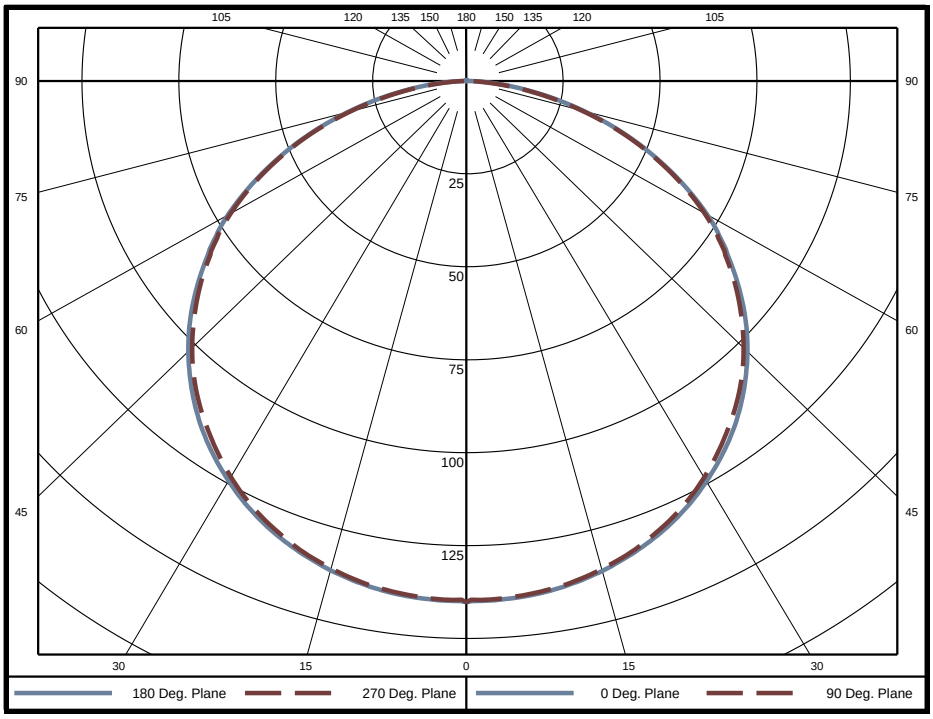
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	24.00 VDC	0.3271 A	7.851 W	N/A	N/A	N/A

Summary of Results

Spacing Criteria
0-180: 1.32
90-270: 1.32

Total Lumen Output: 439.4 Lumens
Luminaire Efficacy: 56.0 lm/w
Maximum Candela: 142 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	3.35	0.8%	60-65	31.80	7.2%	120-125	0.03	0.0%
5-10	9.97	2.3%	65-70	26.43	6.0%	125-130	0.04	0.0%
10-15	16.33	3.7%	70-75	20.12	4.6%	130-135	0.04	0.0%
15-20	22.24	5.1%	75-80	13.33	3.0%	135-140	0.05	0.0%
20-25	27.55	6.3%	80-85	6.84	1.6%	140-145	0.05	0.0%
25-30	32.05	7.3%	85-90	1.91	0.4%	145-150	0.05	0.0%
30-35	35.61	8.1%	90-95	0.12	0.0%	150-155	0.05	0.0%
35-40	38.14	8.7%	95-100	0.05	0.0%	155-160	0.05	0.0%
40-45	39.49	9.0%	100-105	0.03	0.0%	160-165	0.04	0.0%
45-50	39.53	9.0%	105-110	0.02	0.0%	165-170	0.03	0.0%
50-55	38.24	8.7%	110-115	0.02	0.0%	170-175	0.02	0.0%
55-60	35.77	8.1%	115-120	0.02	0.0%	175-180	0.01	0.0%

Zone	Lumens	% of Luminaire
0-40	185	42.2%
0-60	338	77.0%
0-90	439	99.8%
90-180	1	0.2%

Candela Tabulation

Horizontal Angle (Degrees)

Vertical 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	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2
5	139.6	141.3	139.4	139.6	139.3	139.6	139.4	141.3	139.6	141.3	139.4	139.6	139.3	139.6	139.4	141.3
10	138.5	140.1	138.2	138.4	138.1	138.4	138.2	140.1	138.5	140.1	138.2	138.4	138.1	138.4	138.2	140.1
15	136.4	137.9	135.9	136.0	135.8	136.0	135.9	137.9	136.4	137.9	135.9	136.0	135.8	136.0	135.9	137.9
20	133.3	134.8	132.8	132.9	132.7	132.9	132.8	134.8	133.3	134.8	132.8	132.9	132.7	132.9	132.8	134.8
25	129.3	130.8	128.7	128.7	128.4	128.7	128.7	130.8	129.3	130.8	128.7	128.7	128.4	128.7	128.7	130.8
30	124.2	125.6	123.5	123.3	123.0	123.3	123.5	125.6	124.2	125.6	123.5	123.3	123.0	123.3	123.5	125.6
35	118.2	119.3	117.5	117.1	116.6	117.1	117.5	119.3	118.2	119.3	117.5	117.1	116.6	117.1	117.5	119.3
40	111.0	112.2	110.4	110.0	109.6	110.0	110.4	112.2	111.0	112.2	110.4	110.0	109.6	110.0	110.4	112.2
45	102.7	103.8	102.3	101.8	101.3	101.8	102.3	103.8	102.7	103.8	102.3	101.8	101.3	101.8	102.3	103.8
50	93.2	94.2	93.1	92.6	91.9	92.6	93.1	94.2	93.2	94.2	93.1	92.6	91.9	92.6	93.1	94.2
55	82.7	83.6	82.7	82.3	81.7	82.3	82.7	83.6	82.7	83.6	82.7	82.3	81.7	82.3	82.7	83.6
60	71.8	72.5	71.8	71.4	71.0	71.4	71.8	72.5	71.8	72.5	71.8	71.4	71.0	71.4	71.8	72.5
65	58.9	59.5	59.1	58.7	58.4	58.7	59.1	59.5	58.9	59.5	59.1	58.7	58.4	58.7	59.1	59.5
70	45.5	45.8	45.6	45.1	45.0	45.1	45.6	45.8	45.5	45.8	45.6	45.1	45.0	45.1	45.6	45.8
75	31.7	32.0	31.8	31.3	31.0	31.3	31.8	32.0	31.7	32.0	31.8	31.3	31.0	31.3	31.8	32.0
80	18.6	18.7	18.6	18.2	17.8	18.2	18.6	18.7	18.6	18.7	18.6	18.2	17.8	18.2	18.6	18.7
85	7.8	7.7	7.3	6.9	6.5	6.9	7.3	7.7	7.8	7.7	7.3	6.9	6.5	6.9	7.3	7.7
90	0.2	0.9	0.8	0.7	0.6	0.7	0.8	0.9	0.2	0.9	0.8	0.7	0.6	0.7	0.8	0.9
95	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1
100	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0
105	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
125	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
130	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
135	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
140	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
145	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
150	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
155	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
160	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
165	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
170	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
175	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
180	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Average Luminance (cd/m^2)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
0	33440	33440	33440
45	34640	34510	34170
55	34390	34400	33960
65	33240	33340	32930
75	29210	29320	28600
85	21270	20090	17880

Utilization of Lumens - Zonal Cavity Method

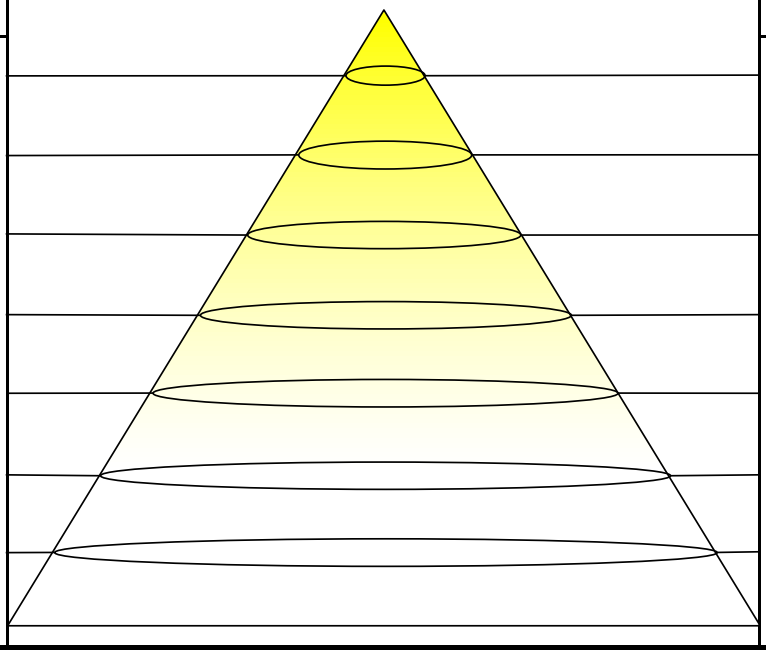
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	523	523	523	523	511	511	511	511	488	488	488	467	467	467	448	448	448	439
1	476	454	435	417	464	444	427	411	425	411	397	408	396	385	392	382	373	364
2	431	394	363	337	420	386	357	333	370	346	325	355	335	317	341	325	310	300
3	392	344	307	278	381	337	303	275	324	294	270	311	286	265	300	279	261	251
4	358	304	264	234	348	298	261	232	287	254	229	276	248	225	266	242	222	212
5	329	270	230	200	319	265	227	199	256	222	197	247	217	194	239	213	192	182
6	303	243	203	174	294	239	200	173	230	196	171	223	193	170	216	189	168	159
7	280	220	180	153	273	216	179	152	209	175	151	203	172	150	196	169	148	139
8	261	200	162	136	254	197	160	135	191	158	134	185	155	133	180	153	132	124
9	243	183	146	122	237	181	145	121	175	143	121	171	141	120	166	139	119	111
10	228	169	133	110	222	166	133	110	162	131	109	158	129	108	154	127	108	100

Beam and Field Information

CIE Type:	Direct
Center Beam Intenisty:	140.2 Candela
Central Cone Intensity:	140 Candela
Beam Flux:	342.7 Lumens
Beam Angle (0-180):	121.4 Degrees
Beam Angle (90-270):	120.7 Degrees
Field Angle (0-180):	163.9 Degrees
Field Angle (90-270):	163.1 Degrees

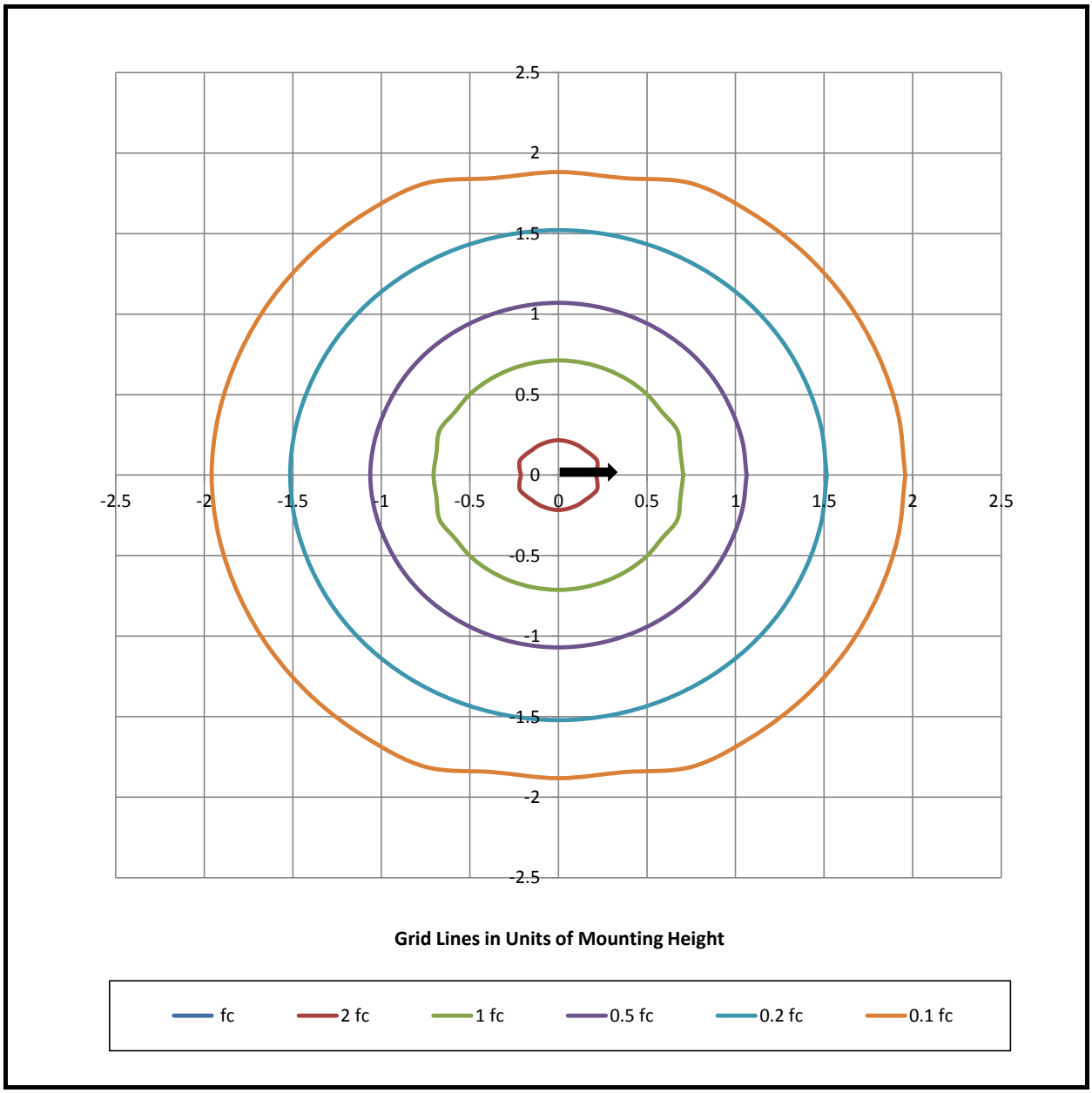
Cone of Light Tabulation

Mounting Height (Feet)	Footcandles at Nadir	Diameter (Feet)
4.00	8.76	5.25
6.00	3.90	7.88
8.00	2.19	10.5
10.0	1.40	13.1
12.0	0.974	15.8
14.0	0.715	18.4
16.0	0.548	21.0



ISOFootcandle Plot

Mounting Height - 8 Feet



CERTIFICATE OF COMPLIANCE

Certificate Number	20190319-E479339
Report Reference	E479339-20151029
Issue Date	2019-MARCH-19

Issued to:	SIRS ELECTRONICS INC 3307 WEST ST ROSENBERG, TX 77471 USA
This is to certify that representative samples of	LOW-VOLTAGE LIGHTING SYSTEMS, POWER UNITS, LUMINAIRES AND FITTINGS See addendum for models.
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	UL 2108, Low Voltage Lighting Systems CSA C22.2 NO. 9.0, Luminaires
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number	20190319-E479339
Report Reference	E479339-20151029
Issue Date	2019-MARCH-19

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Addendum -

Products Covered:

USL, CNL - Low voltage luminaires, LED strip lights, models 5050-LED-RGB, 5050-LED-4RGBXX-72 where XX is A, WH or WW, 5050-LED-WH, -WW, -CW; may be followed additional alphanumeric characters.

USL, CNL - Low voltage luminaires, LED strip lights, models 5050-12RGB, 5050-12RGBXX where XX is A, WN or WW, 5050-12WX where X is N, W, or C; may be followed by additional alphanumeric characters.

USL, CNL - Low voltage luminaires, LED strip lights, 5050-24V-RGB, 5050-24V-4RGBXX where XX is A, WH or WW, 5050-24V- WH, -WW, -CW; may be followed additional alphanumeric characters.

USL, CNL - Low voltage luminaires, LED strip lights, models 5050-24RGB, 5050-24RGBXX where XX is A, WN or WW, 5050-24WX where X is N, W or C; may be followed by additional alphanumeric characters.

USL, CNL - Low voltage luminaires, LED strip lights, model series ACUVIBRANT,

ACUHUE, ACUVIVID; may be followed by additional alphanumeric characters.

Bruce Mahrenholz, Director North American Certification Program

UL LLC