



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



## Photometric Test Report

### Relevant Standards

IES LM-79-2008, ANSI C82.77-10-2014, UL 1598-2008  
CIE 13.3-1995, CIE 15-2004, ANSI C78.377-2017  
IES TM-30-2018

### Prepared For

#### **RBW Studio LLC**

Reland Boyle  
67 34th St, Mailbox 5, Unit 6A  
Brooklyn, NY 11232  
United States

### Catalog Number

#### **Print Sconce Large Frosted 2700K (500mA)**

Order Number

**13802732**

Test Number

**13802732.03**

### Test Date

2021-07-23 - 2021-07-29

Prepared By

Javier Caban, Technician

Approved By

Kevin Rodriguez, Project Handler

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

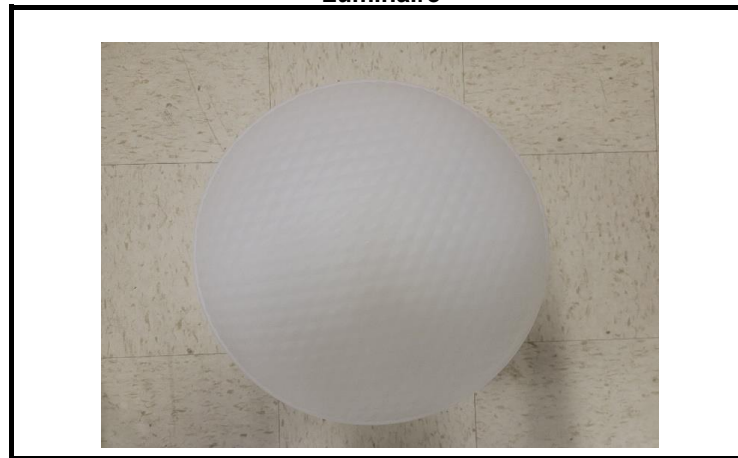
Testing was performed in a 2-meter integrating sphere using the  $4\pi$  geometry method.

Absorption correction was employed for Sphere measurement



**Luminaire Description:** Cast aluminum housing, rubber inner lens, frosted plastic outer lens enclosure  
**Lamp:** 36 white LEDs  
**Mounting:** Pendant  
**Ballast/Driver:** One ERP ESS030W-0500-42

**Luminaire**



**Luminaire Characteristics**

Luminous Diameter: 16.00 in.  
Luminous Height: 11.25 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 1449 Lumens  
Efficacy: 73.15 lm/w  
CCT: 2584 K  
CRI (Ra): 90.5

**Distribution**

Total Luminaire Output: 1409 Lumens  
Luminaire Efficacy: 71.5 lm/w  
Maximum Candela: 154 Candela

**Electrical Data at 120 VAC**

Test Temperature: 24.8 °C  
Voltage: 120.0 VAC  
Current: 0.1676 A  
Power: 19.81 W  
Power Factor: 0.985  
Frequency: 60 Hz  
Current THD: 13.7 %

**In-Situ**

LED Temperature: 46.8 °C  
Driver Temperature: 41.7 °C  
Measured LED Current: 0.01131 A

Temperature is offset to an ambient temperature of 25°C as described in UL1598-2008.



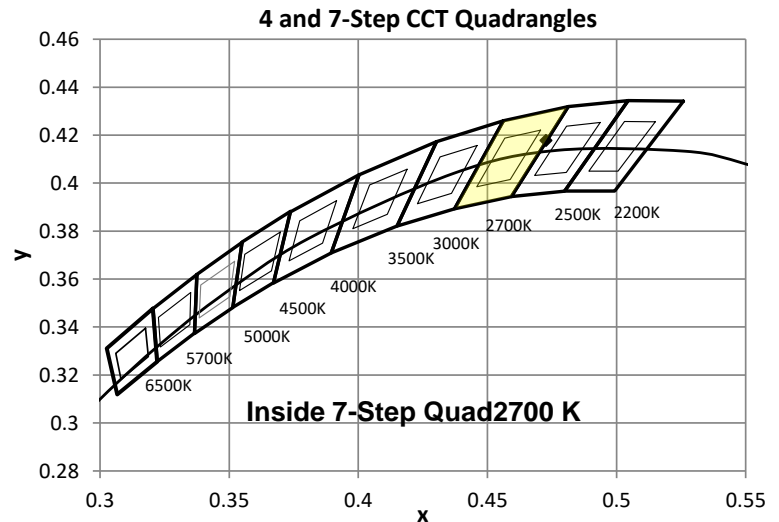
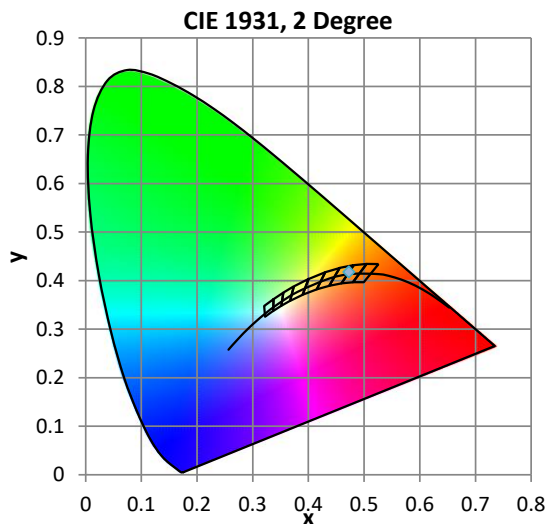
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	120.0 VAC	0.1676 A	19.81 W	0.985	60 Hz	13.7 %

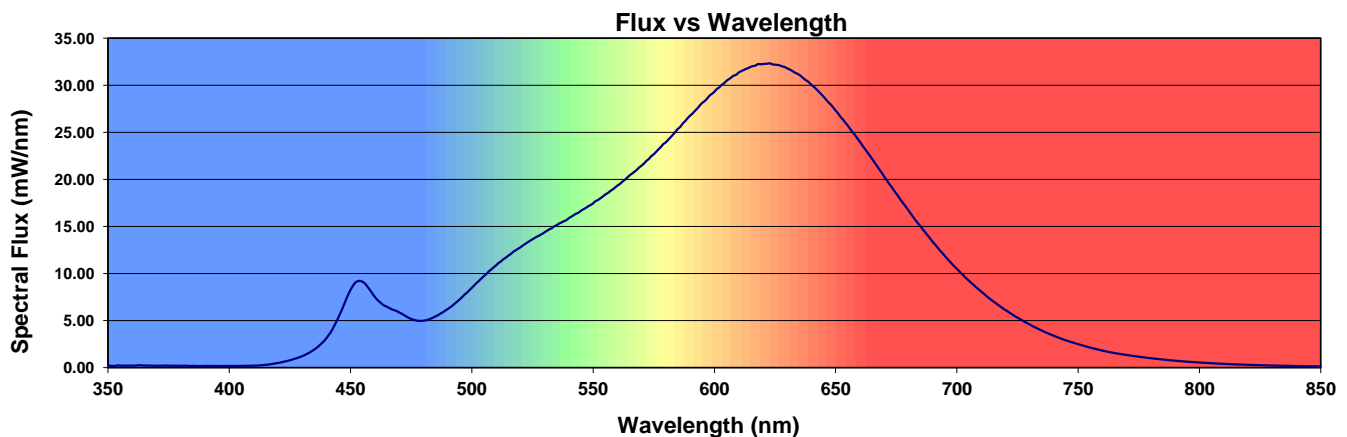
### Summary of Results

<b>Total Output:</b>	1449 Lumens	<b>Chromaticity (x):</b>	0.4726
<b>Efficacy:</b>	73.1 lm/w	<b>Chromaticity (y):</b>	0.4178
<b>CCT:</b>	2584 K	<b>Chromaticity (u'):</b>	0.2674
<b>CRI (Ra):</b>	90.5	<b>Chromaticity (v'):</b>	0.5320
<b>CRI (R9):</b>	47.9	<b>TM-30 Rf:</b>	91
<b>Peak Wavelength:</b>	622 nm	<b>TM-30 Rg:</b>	97
<b>Dominant Wavelength:</b>	584 nm	<b>TM-30 Rcs,h1:</b>	-6%
<b>S/P Ratio:</b>	1.19	<b>Duv:</b>	0.0016
<b>M/P Ratio:</b>	0.43	WELL Building Standard v2	



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
90.5	89.9	94.9	98.9	89.9	89.5	94.8	90.0	76.0	47.9	87.6	90.7	81.2	91.0	98.7	84.7





## Distribution - Goniophotometer

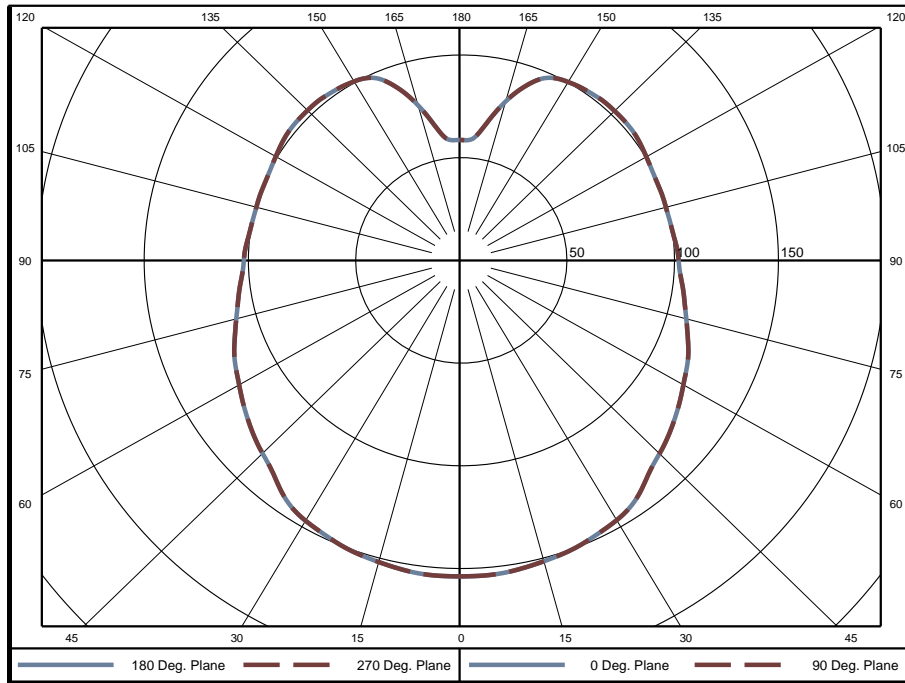
### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.1 °C	119.9 VAC	0.1669 A	19.72 W	0.985	60 Hz	13.7 %

### Summary of Results

<b>Spacing Criteria</b>	<b>Total Lumen Output:</b>	1409 Lumens
0-180: 1.43	<b>Luminaire Efficacy:</b>	71.5 lm/w
90-270: 1.43	<b>Maximum Candela:</b>	154 Candela
<b>Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)</b>		
<b>Crosswise:</b> 14.7	<b>Endwise:</b> 14.7	

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	3.68	0.3%	60-65	58.39	4.1%	120-125	47.21	3.4%
5-10	10.98	0.8%	65-70	59.08	4.2%	125-130	44.82	3.2%
10-15	18.08	1.3%	70-75	58.85	4.2%	130-135	41.71	3.0%
15-20	24.92	1.8%	75-80	58.34	4.1%	135-140	38.17	2.7%
20-25	31.40	2.2%	80-85	57.74	4.1%	140-145	34.17	2.4%
25-30	37.37	2.7%	85-90	56.90	4.0%	145-150	29.86	2.1%
30-35	42.79	3.0%	90-95	56.30	4.0%	150-155	25.24	1.8%
35-40	46.93	3.3%	95-100	55.18	3.9%	155-160	19.89	1.4%
40-45	50.04	3.6%	100-105	53.96	3.8%	160-165	14.01	1.0%
45-50	53.11	3.8%	105-110	52.63	3.7%	165-170	8.64	0.6%
50-55	55.48	3.9%	110-115	50.94	3.6%	170-175	4.45	0.3%
55-60	57.18	4.1%	115-120	49.13	3.5%	175-180	1.41	0.1%

Zone	Lumens	% of Luminaire
0-40	216	15.3%
0-60	432	30.7%
0-90	781	55.4%
90-180	628	44.6%



### Candela Tabulation

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	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	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8
5	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8	153.8
10	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1	153.1
15	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8
20	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6	150.6
25	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7
30	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7	146.7
35	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5	143.5
40	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6	137.6
45	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2	133.2
50	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6	129.6
55	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6	125.6
60	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8	121.8
65	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5
70	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6	114.6
75	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7	110.7
80	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5	107.5
85	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9
90	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3	103.3
95	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2	102.2
100	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1	101.1
105	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7
110	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6	100.6
115	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7
120	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.5
125	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7	102.7
130	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2	103.2
135	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1
140	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9
145	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9	101.9
150	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7
155	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1	98.1
160	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3	90.3
165	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8
170	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2	66.2
175	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1
180	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7

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

Horizontal Angle (Degrees)

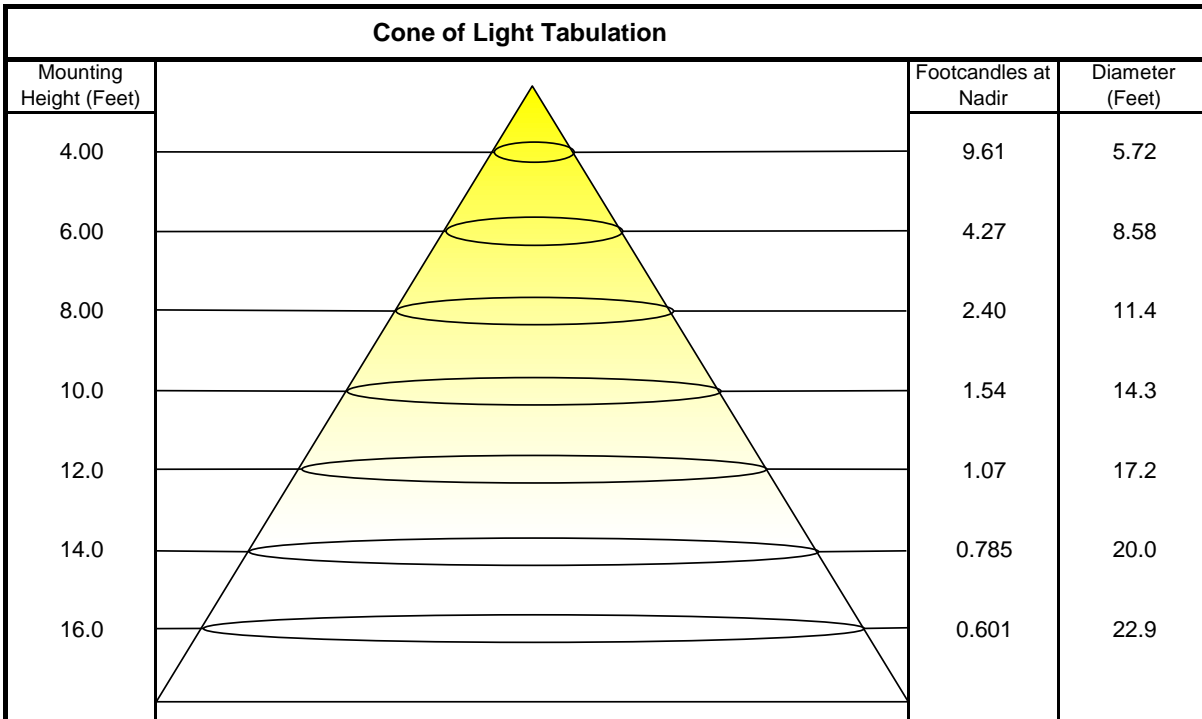
Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	1186	1186	1186
45	766	766	766
55	741	741	741
65	741	741	741
75	759	759	759
85	826	826	826



### 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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55
1	95	89	84	79	88	82	78	73	70	66	63	59	56	53	48	46	44	39
2	85	76	68	62	78	70	63	57	59	54	49	49	45	42	40	37	34	30
3	77	66	57	50	71	61	53	46	51	45	40	43	38	34	34	31	28	24
4	70	57	48	41	64	53	45	38	45	38	33	37	32	28	30	26	23	19
5	64	51	41	35	59	47	39	32	40	33	28	33	28	24	27	23	20	16
6	59	45	36	30	54	42	34	28	36	29	24	30	24	20	24	20	17	14
7	54	41	32	26	50	38	30	24	32	26	21	27	22	18	22	18	15	12
8	50	37	28	22	46	34	26	21	29	23	18	24	19	16	20	16	13	11
9	47	33	25	20	43	31	24	19	27	21	16	22	17	14	19	15	12	9
10	44	31	23	18	40	28	21	17	24	19	15	21	16	12	17	13	10	8

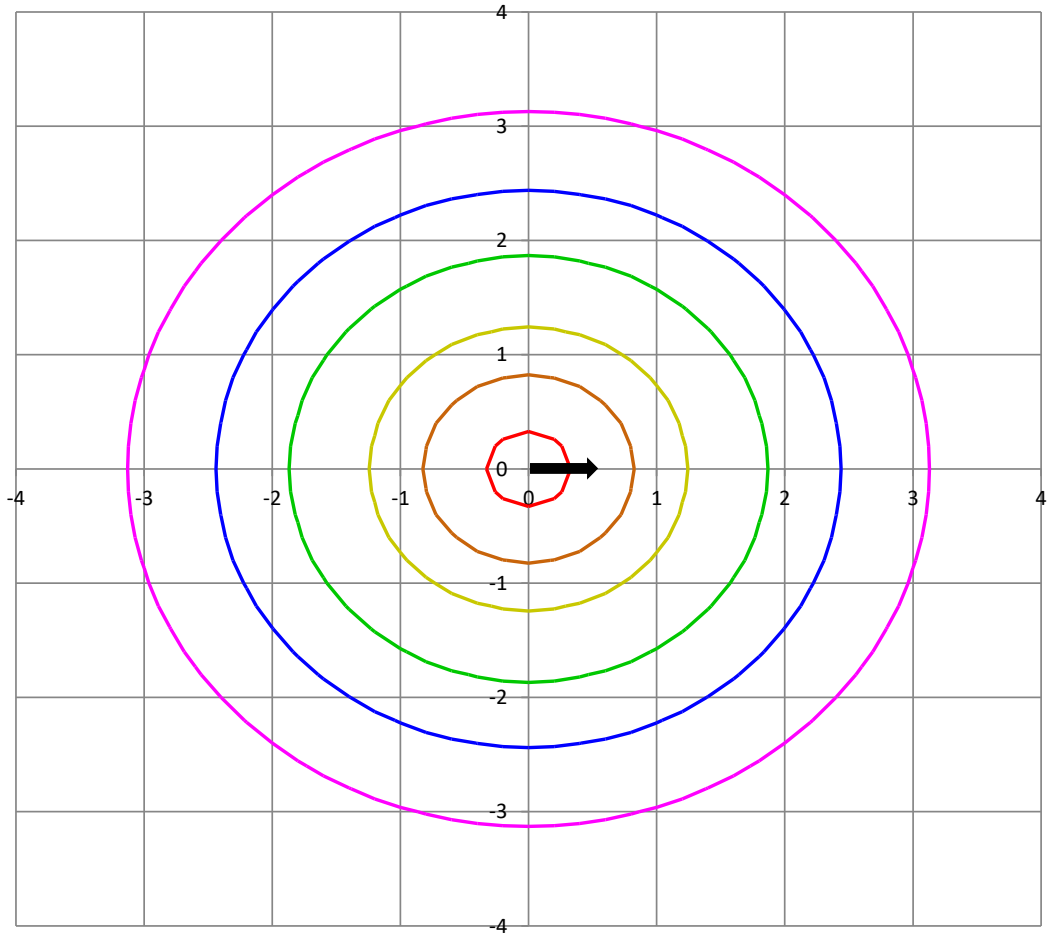
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	153.8 Candela
Central Cone Intensity:	154 Candela
Beam Flux:	1396.1 Lumens
Beam Angle (0-180):	331.5 Degrees
Beam Angle (90-270):	331.5 Degrees
Field Angle (0-180):	N/A Degrees
Field Angle (90-270):	N/A Degrees



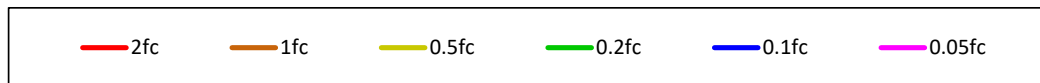


## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height







## In-Situ Test

### In-Situ Test Conditions

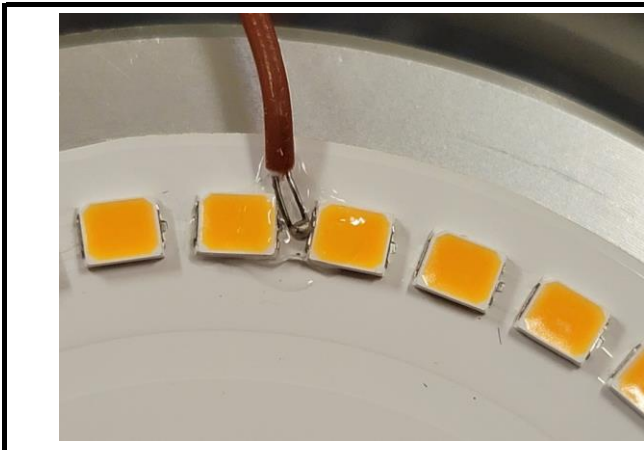
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
22.6 °C	120.2 VAC	N/A	N/A	N/A	60 Hz	N/A

### Summary of Results

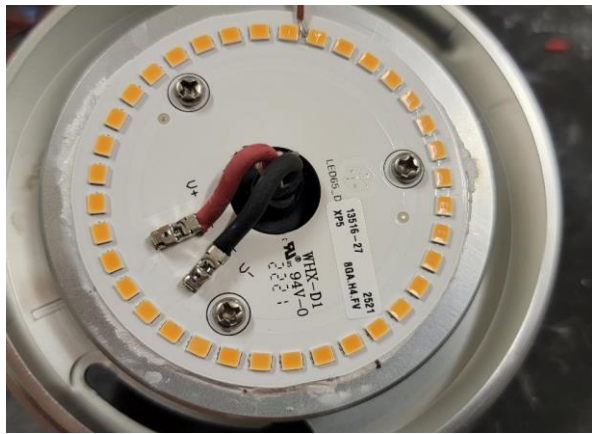
LED Temperature: 46.8 °C  
Driver Temperature: 41.7 °C  
Measured LED Current: 0.01131 A

Temperatures are offset to an ambient temperature of 25°C as described in UL1598-2008

### LED Temperature Location



### Thermocouple Reference



### Driver Temperature Location



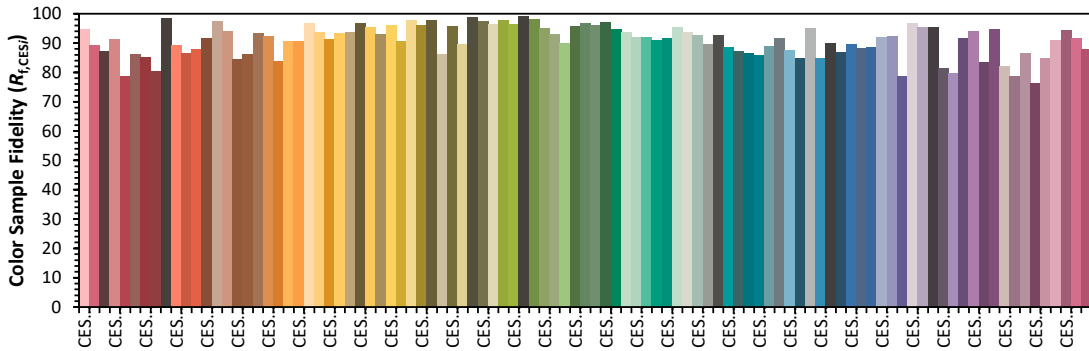
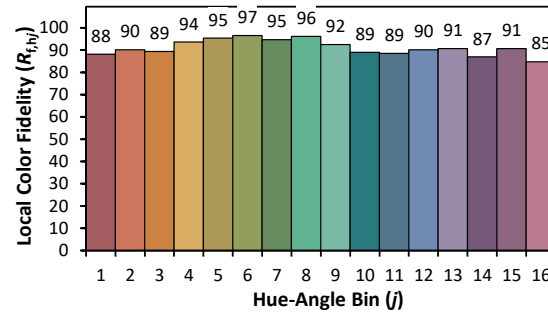
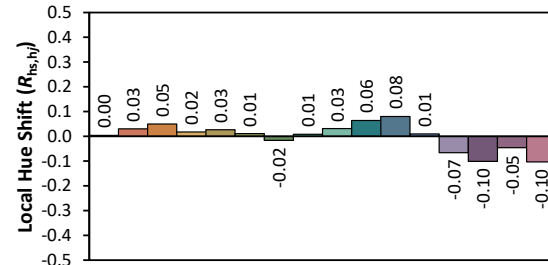
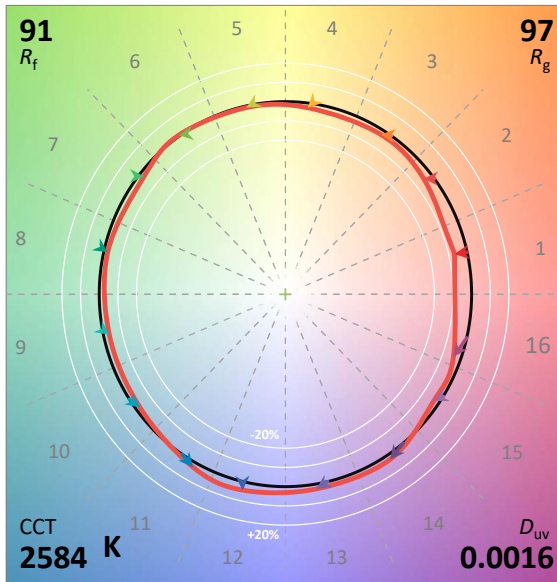
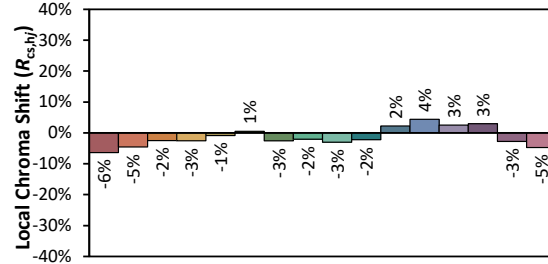
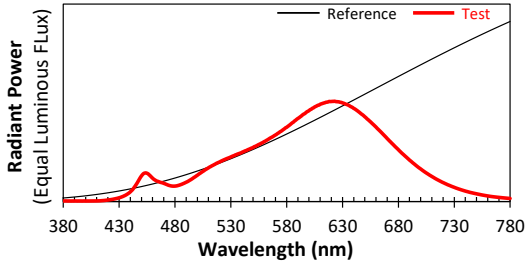
# ANSI/IES TM-30-18 Color Rendition Report

Date: 2021-07-23

Manufacturer: RBW Studio LLC

Model:

Print Sconce Large Frosted 2700K (500mA)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

$x$  0.4726  
 $y$  0.4178  
 $u'$  0.2674  
 $v'$  0.5320

CIE 13.3-1995  
(CRI)

$R_a$  90

$R_g$  48

Colors are for visual orientation purposes only. Created with the IES TM-30-18 Calculator Version 2.00.