



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, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2017, IES TM-30-2018

### Prepared For

#### **RBW Studio LLC**

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

### Catalog Number

#### **Radiant Square 12"**

Order Number

**14026619**

Test Number

**14026619.06**

### Test Date

2021-10-08 - 2021-10-15

Prepared By

Cordaryl Cousar, 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

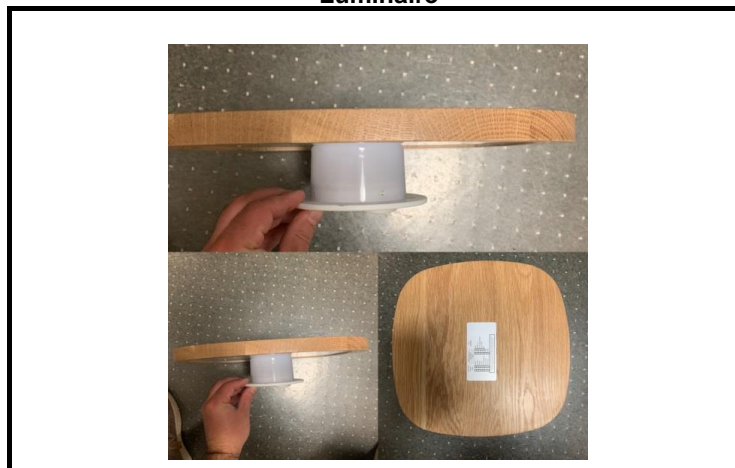
Testing was performed in a 2-meter integrating sphere using the  $4\pi$  geometry method.

Absorption correction was employed for Sphere measurement



**Luminaire Description:** Decorative white oak wall sconce with aluminum heat sink and frosted plastic diffuser  
**Lamp:** 36 white LEDs  
**Mounting:** Surface – Wall  
**Ballast/Driver:** One ERP ESS010W-0200-42 LED driver

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 1.88 in.  
Luminous Width: 10.50 in.  
Luminous Height: 10.50 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 449.9 Lumens  
Efficacy: 56.39 lm/w  
CCT: 2684 K  
CRI (Ra): 94.9

**Distribution**

Total Luminaire Output: 452.6 Lumens  
Luminaire Efficacy: 56.7 lm/w  
Maximum Candela: 82 Candela

**Electrical Data at 120 VAC**

Test Temperature: 25.3 °C  
Voltage: 120.1 VAC  
Current: 0.06757 A  
Power: 7.978 W  
Power Factor: 0.983  
Frequency: 60 Hz  
Current THD: 12.1 %



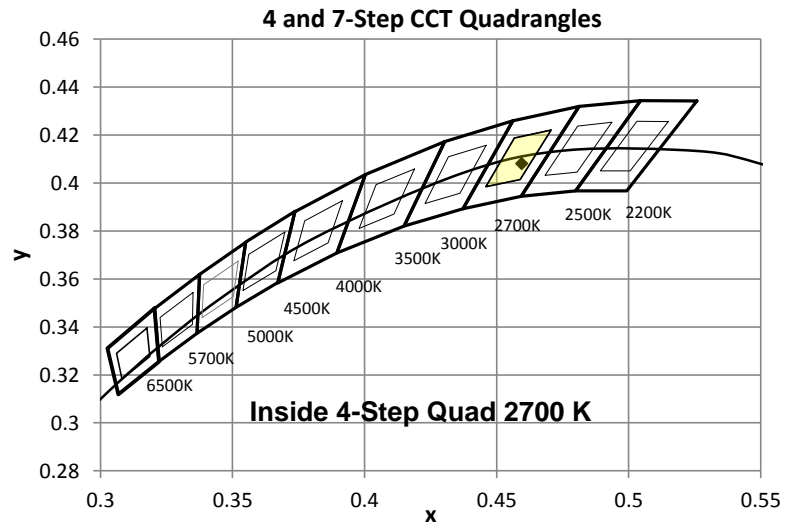
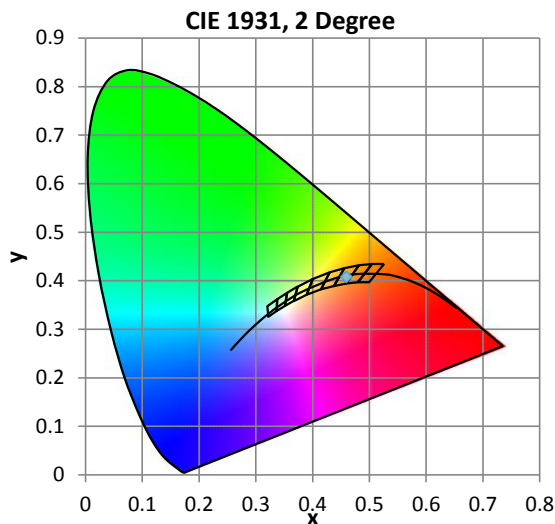
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.3 °C	120.1 VAC	0.06757 A	7.978 W	0.983	60 Hz	12.1 %

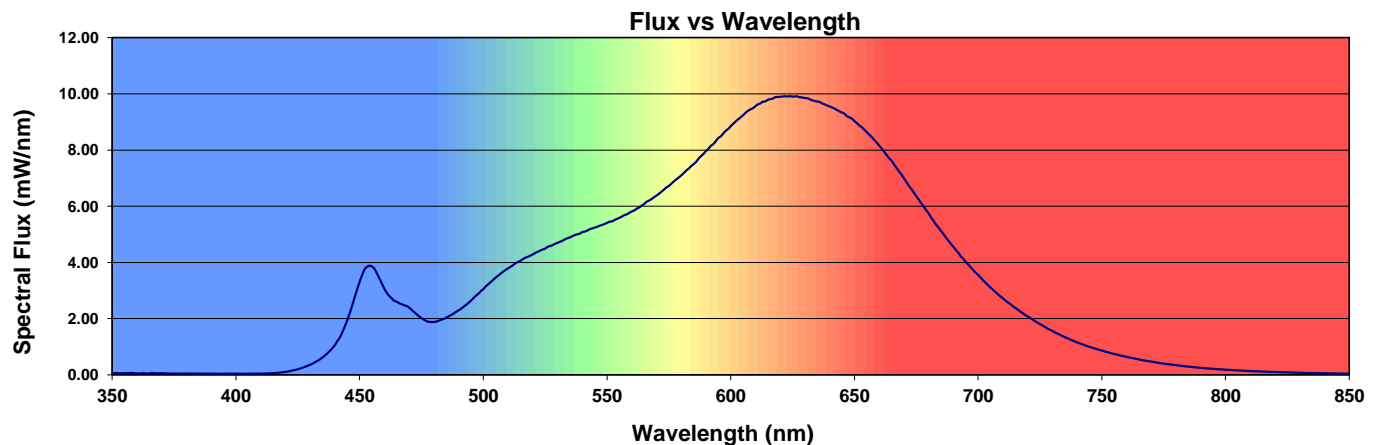
### Summary of Results

<b>Total Output:</b>	450 Lumens	<b>Chromaticity (x):</b>	0.4595
<b>Efficacy:</b>	56.4 lm/w	<b>Chromaticity (y):</b>	0.4081
<b>CCT:</b>	2684 K	<b>Chromaticity (u'):</b>	0.2634
<b>CRI (Ra):</b>	94.9	<b>Chromaticity (v'):</b>	0.5263
<b>CRI (R9):</b>	67.0	<b>TM-30 Rf:</b>	93
<b>Peak Wavelength:</b>	631 nm	<b>TM-30 Rg:</b>	99
<b>Dominant Wavelength:</b>	585 nm	<b>TM-30 Rcs,h1:</b>	-4%
<b>S/P Ratio:</b>	1.31	<b>Duv:</b>	-0.0009
<b>M/P Ratio:</b>	0.5	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
94.9	96.0	98.9	98.8	95.8	96.1	97.1	92.0	84.2	67.0	96.6	97.8	86.6	97.2	99.3	91.7





## Distribution - Goniophotometer

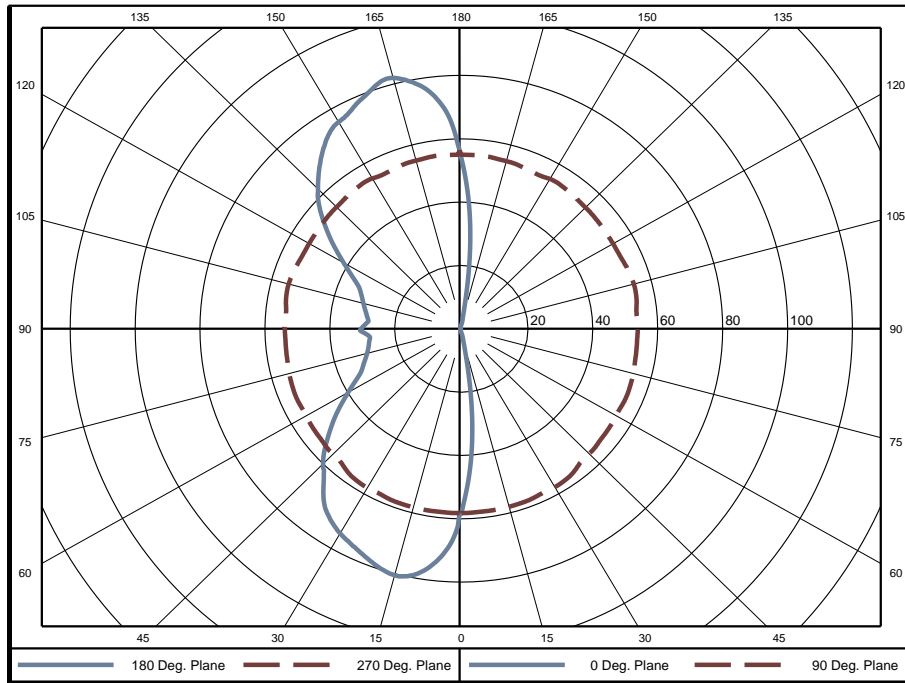
### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.06763 A	7.985 W	0.984	60 Hz	12.0 %

### Summary of Results

<b>Spacing Criteria</b>	<b>Total Lumen Output:</b>	452.6 Lumens
0-180: 0.25	<b>Luminaire Efficacy:</b>	56.7 lm/w
90-270: 1.51	<b>Maximum Candela:</b>	82 Candela
<b>Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)</b>		
<b>Crosswise:</b> 0	<b>Endwise:</b> 17.5	

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	1.37	0.3%	60-65	16.28	3.6%	120-125	16.33	3.6%
5-10	3.87	0.9%	65-70	16.48	3.6%	125-130	16.05	3.5%
10-15	5.89	1.3%	70-75	16.54	3.7%	130-135	15.52	3.4%
15-20	7.72	1.7%	75-80	16.53	3.7%	135-140	14.69	3.2%
20-25	9.40	2.1%	80-85	16.54	3.7%	140-145	13.62	3.0%
25-30	10.90	2.4%	85-90	16.64	3.7%	145-150	12.33	2.7%
30-35	12.37	2.7%	90-95	16.66	3.7%	150-155	10.76	2.4%
35-40	13.56	3.0%	95-100	16.66	3.7%	155-160	9.23	2.0%
40-45	14.41	3.2%	100-105	16.79	3.7%	160-165	7.60	1.7%
45-50	15.24	3.4%	105-110	16.75	3.7%	165-170	5.76	1.3%
50-55	15.78	3.5%	110-115	16.60	3.7%	170-175	3.79	0.8%
55-60	16.11	3.6%	115-120	16.47	3.6%	175-180	1.34	0.3%

Zone	Lumens	% of Luminaire
0-40	65	14.4%
0-60	127	28.0%
0-90	226	49.9%
90-180	227	50.1%



### 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	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19	58.19
5	39.76	38.10	43.18	49.93	58.10	65.10	69.16	71.19	72.94	71.19	69.16	65.10	58.10	49.93	43.18	38.10
10	16.39	16.94	27.21	42.03	58.14	69.92	75.35	77.85	78.81	77.85	75.35	69.92	58.14	42.03	27.21	16.94
15	4.75	5.31	11.68	33.35	58.16	73.55	79.22	80.67	80.27	80.67	79.22	73.55	58.16	33.35	11.68	5.31
20	2.46	2.73	4.71	23.85	58.07	76.50	80.91	79.75	78.47	79.75	80.91	76.50	58.07	23.85	4.71	2.73
25	0.82	1.09	2.73	14.35	57.67	78.59	79.91	77.49	76.10	77.49	79.91	78.59	57.67	14.35	2.73	1.09
30	0.65	0.68	1.47	7.71	57.70	80.73	78.75	75.82	74.11	75.82	78.75	80.73	57.70	7.71	1.47	0.68
35	0.53	0.59	0.62	4.53	57.40	81.75	77.34	73.54	70.95	73.54	77.34	81.75	57.40	4.53	0.62	0.59
40	0.45	0.52	0.55	3.18	56.25	80.48	74.73	69.34	65.03	69.34	74.73	80.48	56.25	3.18	0.55	0.52
45	0.39	0.48	0.51	2.51	55.69	79.73	72.97	65.00	59.24	65.00	72.97	79.73	55.69	2.51	0.51	0.48
50	0.35	0.44	0.47	1.99	55.38	79.11	71.47	60.65	52.59	60.65	71.47	79.11	55.38	1.99	0.47	0.44
55	0.32	0.41	0.46	1.51	55.18	78.70	69.94	55.58	45.84	55.58	69.94	78.70	55.18	1.51	0.46	0.41
60	0.30	0.39	0.44	1.18	54.87	78.09	68.07	49.97	39.13	49.97	68.07	78.09	54.87	1.18	0.44	0.39
65	0.29	0.39	0.45	1.01	54.99	78.29	66.83	45.02	33.75	45.02	66.83	78.29	54.99	1.01	0.45	0.39
70	0.28	0.38	0.45	0.92	54.92	78.18	65.39	40.68	31.22	40.68	65.39	78.18	54.92	0.92	0.45	0.38
75	0.28	0.39	0.47	0.84	54.66	77.79	63.80	37.02	29.35	37.02	63.80	77.79	54.66	0.84	0.47	0.39
80	0.28	0.43	0.47	0.80	54.26	77.30	62.75	34.49	28.27	34.49	62.75	77.30	54.26	0.80	0.47	0.43
85	0.35	0.48	0.49	0.78	54.11	77.33	62.13	33.18	27.75	33.18	62.13	77.33	54.11	0.78	0.49	0.48
90	0.37	0.49	0.50	0.77	54.14	77.49	62.09	32.65	30.41	32.65	62.09	77.49	54.14	0.77	0.50	0.49
95	0.37	0.55	0.57	1.02	54.00	77.05	61.72	33.58	28.07	33.58	61.72	77.05	54.00	1.02	0.57	0.55
100	0.31	0.51	0.57	1.06	54.60	78.16	63.32	35.30	29.14	35.30	63.32	78.16	54.60	1.06	0.57	0.51
105	0.28	0.46	0.58	1.10	54.83	78.79	64.67	37.88	30.53	37.88	64.67	78.79	54.83	1.10	0.58	0.46
110	0.29	0.47	0.58	1.15	54.45	78.87	66.04	41.39	32.14	41.39	66.04	78.87	54.45	1.15	0.58	0.47
115	0.31	0.48	0.59	1.20	53.95	78.82	67.43	45.74	35.14	45.74	67.43	78.82	53.95	1.20	0.59	0.48
120	0.33	0.50	0.60	1.30	53.85	79.38	69.27	51.11	40.76	51.11	69.27	79.38	53.85	1.30	0.60	0.50
125	0.34	0.51	0.61	1.46	53.95	80.19	71.34	57.00	47.83	57.00	71.34	80.19	53.95	1.46	0.61	0.51
130	0.36	0.52	0.61	1.80	54.03	81.11	73.33	62.41	55.11	62.41	73.33	81.11	54.03	1.80	0.61	0.52
135	0.37	0.53	0.63	2.43	54.14	81.90	74.99	66.98	61.46	66.98	74.99	81.90	54.14	2.43	0.63	0.53
140	0.38	0.55	0.63	3.09	54.39	82.25	76.61	71.09	66.90	71.09	76.61	82.25	54.39	3.09	0.63	0.55
145	0.42	0.60	0.67	4.36	54.75	82.09	78.15	74.21	71.83	74.21	78.15	82.09	54.75	4.36	0.67	0.60
150	0.50	0.66	1.37	6.97	54.70	80.59	79.47	76.22	75.08	76.22	79.47	80.59	54.70	6.97	1.37	0.66
155	0.60	1.10	2.55	12.25	54.24	77.81	80.32	77.75	77.18	77.75	80.32	77.81	54.24	12.25	2.55	1.10
160	1.91	2.64	4.32	20.72	54.58	75.63	81.39	80.44	80.06	80.44	81.39	75.63	54.58	20.72	4.32	2.64
165	3.65	5.06	10.38	30.41	54.82	72.75	79.51	81.66	82.04	81.66	79.51	72.75	54.82	30.41	10.38	5.06
170	11.51	16.78	25.46	39.50	55.03	69.12	75.74	78.92	78.75	78.92	75.74	69.12	55.03	39.50	25.46	16.78
175	34.82	38.44	41.98	47.70	55.07	63.59	69.39	72.52	72.11	72.52	69.39	63.59	55.07	47.70	41.98	38.44
180	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39	56.39

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

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	Horizontal Angle (Degrees)		
	0	45	90
0	4581	4581	4581
45	7	10	3101
55	5	8	3119
65	4	8	3258
75	4	8	3514
85	5	8	3933



### 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	94	89	83	79	86	81	77	73	68	64	61	56	53	51	44	42	41	35
2	85	76	68	62	77	69	63	57	58	53	48	47	43	40	37	34	32	27
3	77	66	57	50	70	60	53	47	50	44	39	41	36	33	32	29	26	22
4	70	57	49	42	63	53	45	39	44	38	33	36	31	27	28	25	22	18
5	64	51	42	35	58	47	39	33	39	33	28	32	27	23	25	21	18	15
6	59	45	37	30	53	42	34	28	35	29	24	29	24	20	23	19	16	13
7	54	41	32	26	49	38	30	24	32	25	21	26	21	17	21	17	14	11
8	50	37	29	23	46	34	27	21	29	23	18	24	19	15	19	15	12	10
9	47	34	26	20	43	31	24	19	26	20	16	22	17	14	17	14	11	9
10	43	31	23	18	40	28	22	17	24	18	15	20	15	12	16	13	10	8

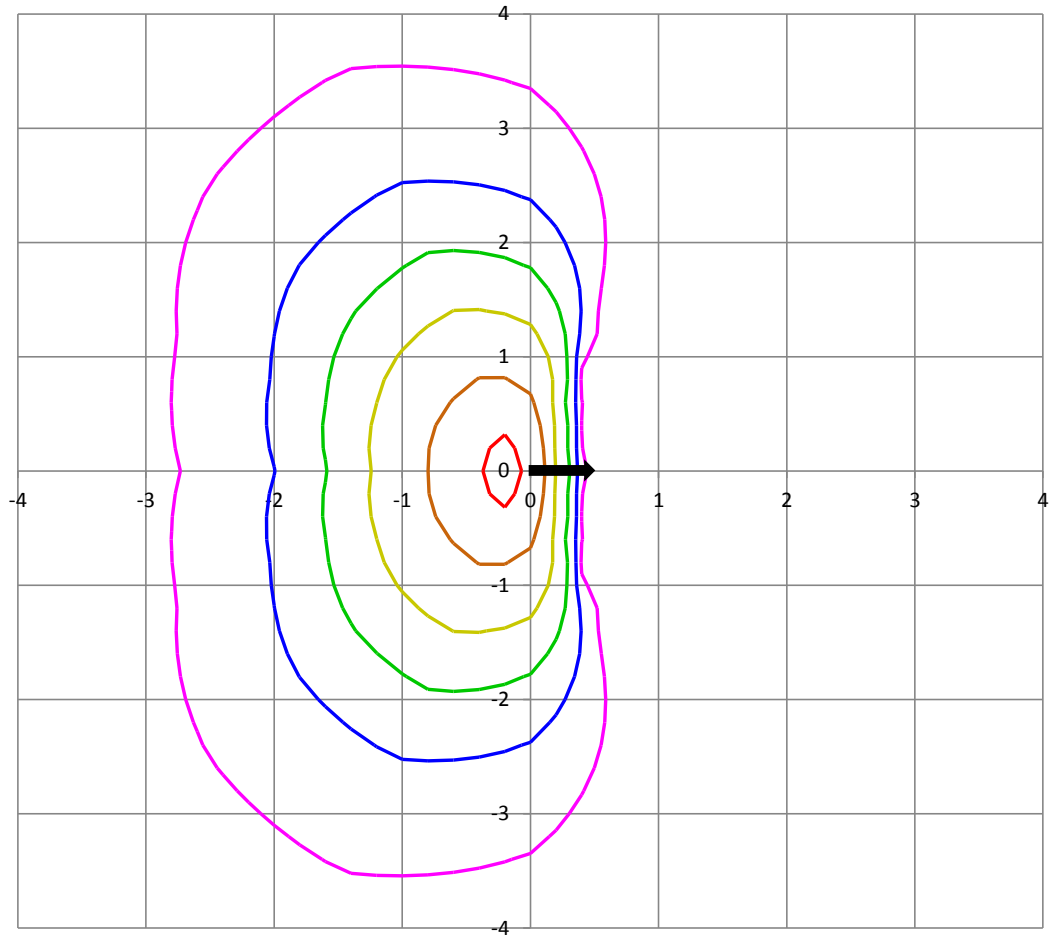
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	58.19 Candela
Central Cone Intensity:	N/A Candela
Beam Flux:	440.3 Lumens
Beam Angle (0-180):	N/A Degrees
Beam Angle (90-270):	N/A Degrees
Field Angle (0-180):	N/A Degrees
Field Angle (90-270):	N/A Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		3.64	4.34
6.00		1.62	6.51
8.00		0.909	8.67
10.0		0.582	10.8
12.0		0.404	13.0
14.0		0.297	15.2
16.0		0.227	17.3

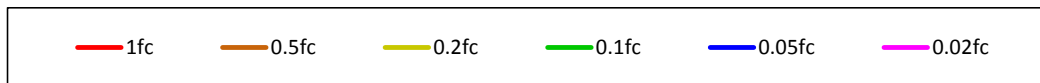


## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height





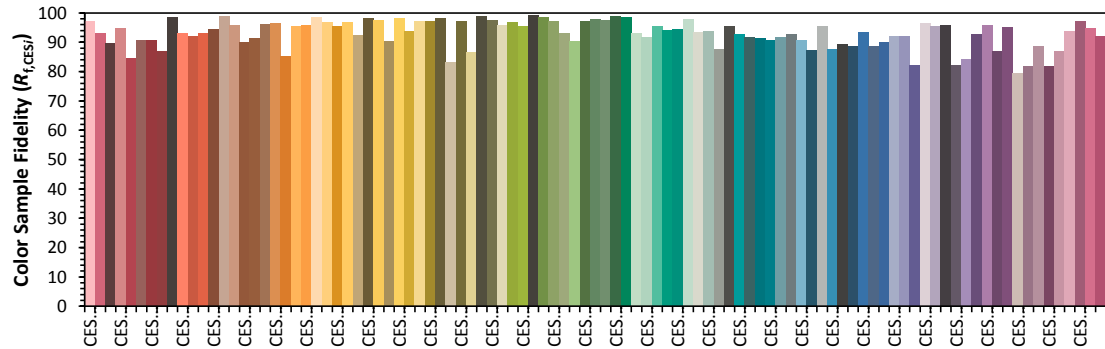
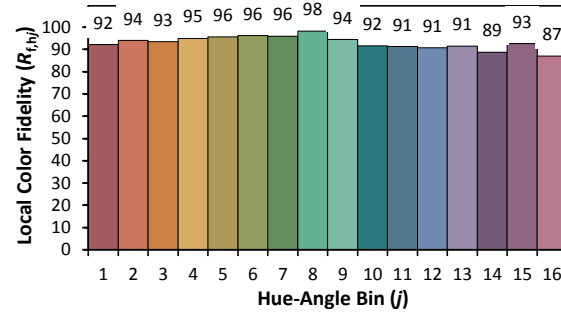
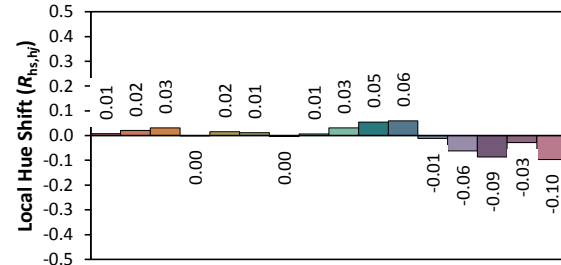
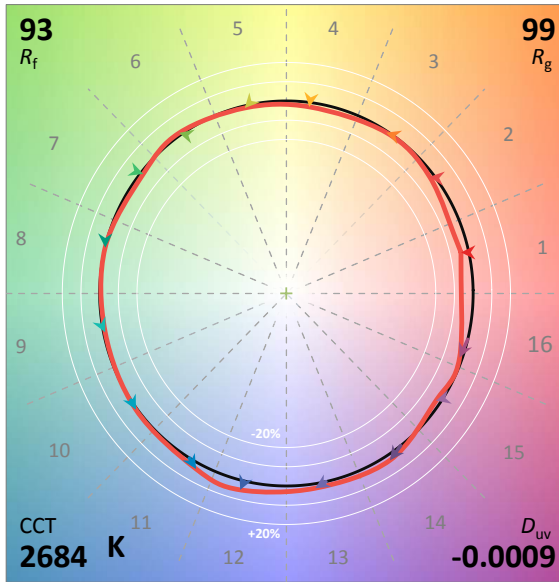
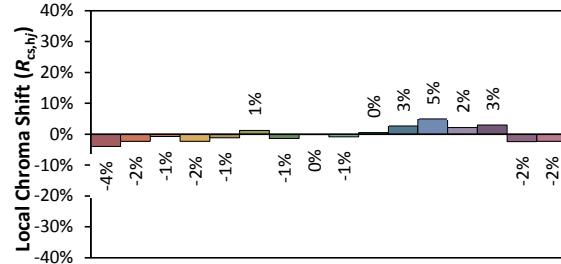
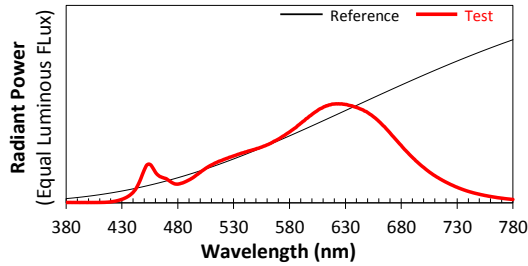
# ANSI/IES TM-30-18 Color Rendition Report

Date: 2021-10-15

Manufacturer: RBW Studio LLC

Model:

Radiant Square 12"



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

x 0.4595

y 0.4081

u' 0.2634

v' 0.5263

CIE 13.3-1995  
(CRI)

R<sub>a</sub> 95

R<sub>g</sub> 67

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