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

**Catalog Number**  
**Radiant Disc 12"**

Order Number  
14026619  
Test Number  
14026619.03

Test Date  
2021-10-06 - 2021-10-19

Prepared By

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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

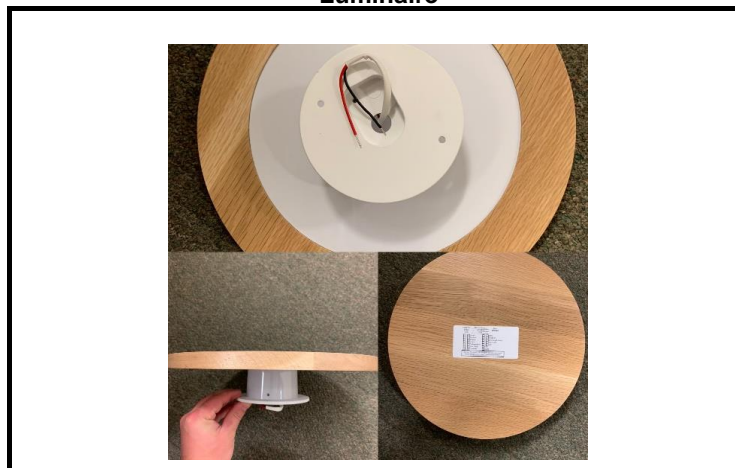
Testing was performed in a 2-meter integrating sphere using the  $4\pi$  geometry method.

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: 8.500 in.  
Luminous Height: 8.50 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 433.7 Lumens  
Efficacy: 55.28 lm/w  
CCT: 2677 K  
CRI (Ra): 95.0

**Distribution**

Total Luminaire Output: 444.8 Lumens  
Luminaire Efficacy: 56.6 lm/w  
Maximum Candela: 80 Candela

**Electrical Data at 120 VAC**

Test Temperature: 24.8 °C  
Voltage: 120.1 VAC  
Current: 0.06638 A  
Power: 7.846 W  
Power Factor: 0.984  
Frequency: 60 Hz  
Current THD: 11.4 %

**In-Situ**

LED Temperature: 48.2 °C  
Driver Temperature: 41.6 °C  
Measured LED Current: 0.01114 A

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



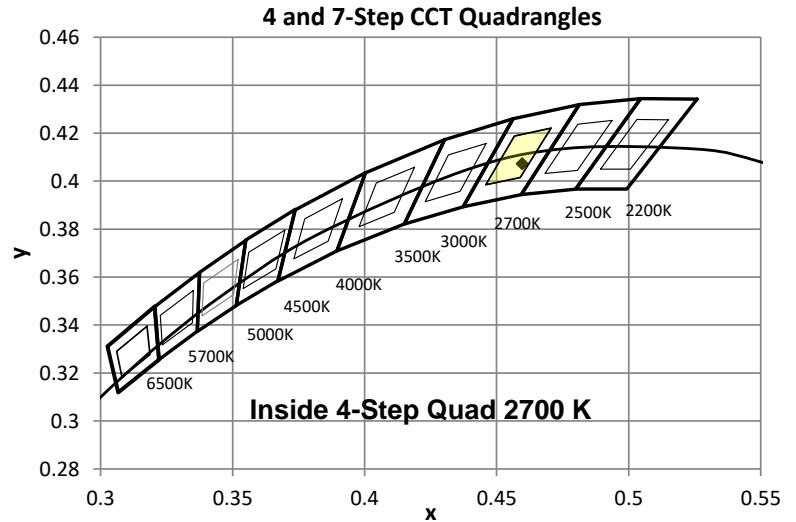
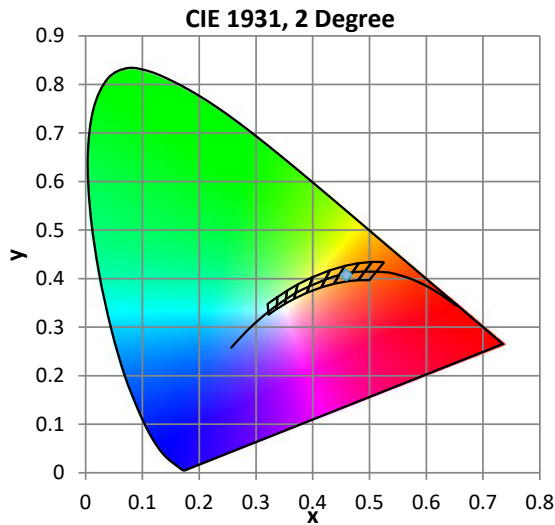
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	120.1 VAC	0.06638 A	7.846 W	0.984	60 Hz	11.4 %

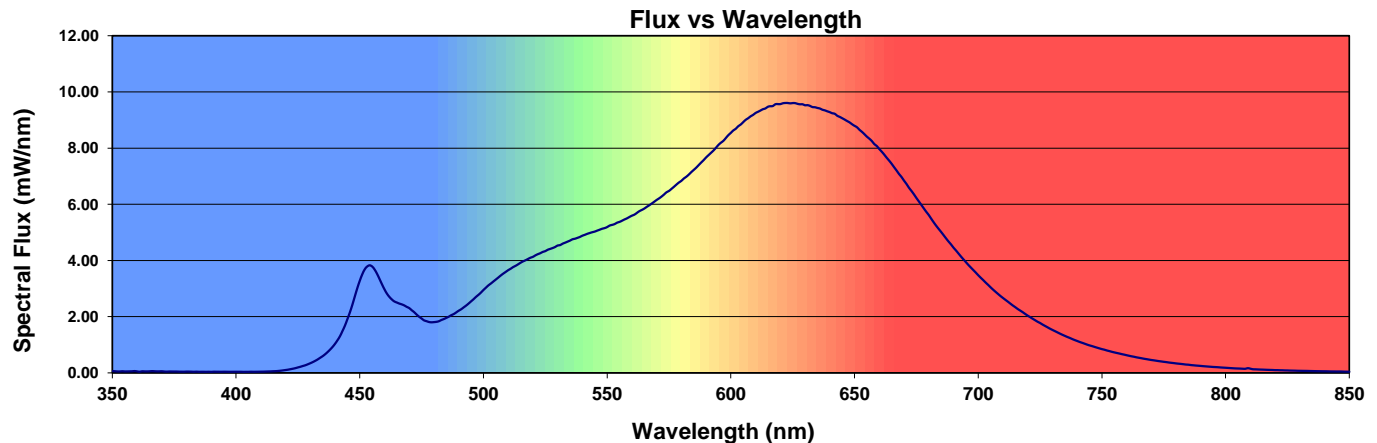
### Summary of Results

<b>Total Output:</b>	434 Lumens	<b>Chromaticity (x):</b>	0.4596
<b>Efficacy:</b>	55.3 lm/w	<b>Chromaticity (y):</b>	0.4073
<b>CCT:</b>	2677 K	<b>Chromaticity (u'):</b>	0.2638
<b>CRI (Ra):</b>	95.0	<b>Chromaticity (v'):</b>	0.5261
<b>CRI (R9):</b>	68.1	<b>TM-30 Rf:</b>	93
<b>Peak Wavelength:</b>	623 nm	<b>TM-30 Rg:</b>	100
<b>Dominant Wavelength:</b>	585 nm	<b>TM-30 Rcs,h1:</b>	-4%
<b>S/P Ratio:</b>	1.31	<b>Duv:</b>	-0.0012
<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
95.0	96.3	99.0	98.7	96.0	96.5	96.9	92.1	84.7	68.1	97.1	97.9	86.8	97.5	99.3	92.2





## Distribution - Goniophotometer

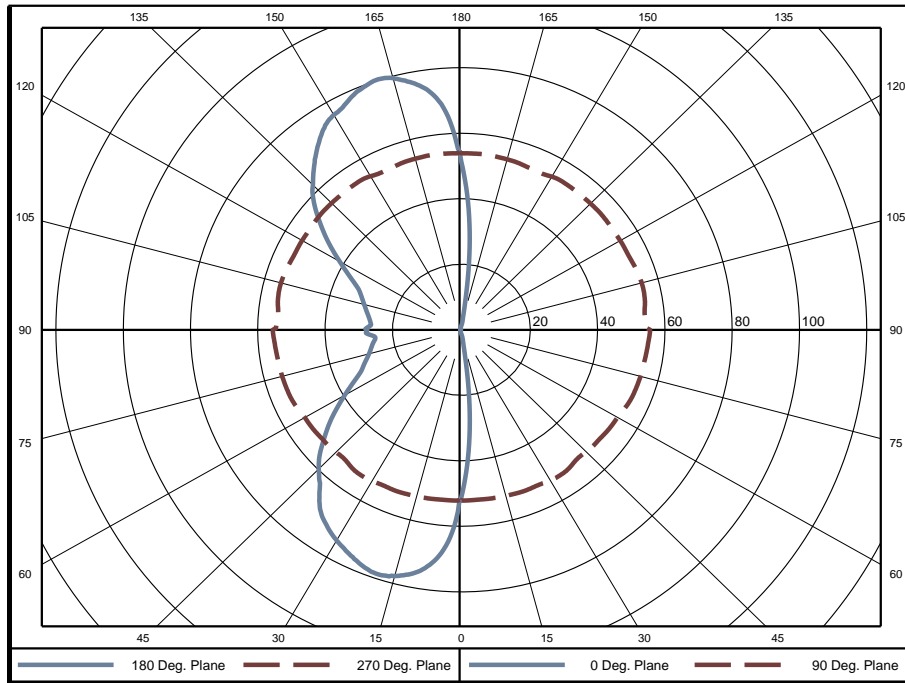
### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.6 °C	120.0 VAC	0.06646 A	7.854 W	0.985	60 Hz	11.4 %

### Summary of Results

<b>Spacing Criteria</b>	<b>Total Lumen Output:</b>	444.8 Lumens
0-180: 0.22	<b>Luminaire Efficacy:</b>	56.6 lm/w
90-270: 1.56	<b>Maximum Candela:</b>	80 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> 19	

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	1.24	0.3%	60-65	16.17	3.6%	120-125	16.20	3.6%
5-10	3.51	0.8%	65-70	16.40	3.7%	125-130	15.91	3.6%
10-15	5.42	1.2%	70-75	16.44	3.7%	130-135	15.34	3.4%
15-20	7.27	1.6%	75-80	16.42	3.7%	135-140	14.48	3.3%
20-25	8.99	2.0%	80-85	16.42	3.7%	140-145	13.42	3.0%
25-30	10.56	2.4%	85-90	16.51	3.7%	145-150	12.16	2.7%
30-35	12.04	2.7%	90-95	16.33	3.7%	150-155	10.61	2.4%
35-40	13.21	3.0%	95-100	16.38	3.7%	155-160	9.06	2.0%
40-45	14.07	3.2%	100-105	16.56	3.7%	160-165	7.40	1.7%
45-50	14.96	3.4%	105-110	16.54	3.7%	165-170	5.58	1.3%
50-55	15.56	3.5%	110-115	16.43	3.7%	170-175	3.66	0.8%
55-60	15.94	3.6%	115-120	16.34	3.7%	175-180	1.30	0.3%

Zone	Lumens	% of Luminaire
0-40	62	14.0%
0-60	123	27.6%
0-90	221	49.7%
90-180	224	50.3%



### 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	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83	51.83
	5	32.51	31.57	37.16	44.24	52.10	60.41	65.21	67.49	69.20	67.49	65.21	60.41	52.10	44.24	37.16
	10	10.81	11.70	21.06	36.33	52.27	66.37	72.10	74.50	75.25	74.50	72.10	66.37	52.27	36.33	21.06
	15	3.89	4.22	8.32	27.93	52.45	70.52	75.96	77.65	77.72	77.65	75.96	70.52	52.45	27.93	8.32
	20	2.07	2.42	4.01	19.51	52.66	73.34	78.02	78.60	78.17	78.60	78.02	73.34	52.66	19.51	4.01
	25	0.76	0.85	2.63	12.08	52.64	75.15	78.48	77.34	76.12	77.34	78.48	75.15	52.64	12.08	2.63
	30	0.68	0.69	1.46	7.44	53.11	77.03	78.43	75.50	73.63	75.50	78.43	77.03	53.11	7.44	1.46
	35	0.57	0.62	0.59	5.06	53.25	77.91	77.17	72.93	70.40	72.93	77.17	77.91	53.25	5.06	0.59
	40	0.47	0.56	0.54	3.68	52.48	77.03	74.27	68.55	64.52	68.55	74.27	77.03	52.48	3.68	0.54
	45	0.41	0.51	0.50	3.03	52.57	77.09	72.37	64.39	58.95	64.39	72.37	77.09	52.57	3.03	0.50
	50	0.37	0.46	0.47	2.57	52.79	77.32	70.80	60.35	52.60	60.35	70.80	77.32	52.79	2.57	0.47
	55	0.34	0.43	0.45	2.19	53.17	77.55	69.21	55.24	45.81	55.24	69.21	77.55	53.17	2.19	0.45
	60	0.31	0.41	0.42	1.86	53.42	77.46	67.40	49.66	38.89	49.66	67.40	77.46	53.42	1.86	0.42
	65	0.29	0.40	0.42	1.58	54.22	78.16	66.36	44.78	33.10	44.78	66.36	78.16	54.22	1.58	0.42
	70	0.29	0.39	0.42	1.32	54.61	78.33	64.87	40.25	29.95	40.25	64.87	78.33	54.61	1.32	0.42
	75	0.28	0.38	0.42	1.10	54.86	78.05	63.21	36.26	27.68	36.26	63.21	78.05	54.86	1.10	0.42
	80	0.27	0.38	0.43	0.96	54.98	77.79	62.09	33.32	26.23	33.32	62.09	77.79	54.98	0.96	0.43
	85	0.27	0.39	0.46	0.90	55.34	77.80	61.43	31.60	25.12	31.60	61.43	77.80	55.34	0.90	0.46
	90	0.27	0.41	0.47	0.91	55.80	77.89	61.27	30.71	27.27	30.71	61.27	77.89	55.80	0.91	0.47
	95	0.35	0.50	0.61	1.00	54.42	76.20	60.59	31.70	26.49	31.70	60.59	76.20	54.42	1.00	0.61
	100	0.30	0.48	0.57	1.12	55.08	77.37	62.23	33.71	27.62	33.71	62.23	77.37	55.08	1.12	0.57
	105	0.31	0.46	0.56	1.30	55.25	77.86	63.53	36.58	29.18	36.58	63.53	77.86	55.25	1.30	0.56
	110	0.33	0.46	0.56	1.54	54.89	77.78	64.88	40.29	31.09	40.29	64.88	77.78	54.89	1.54	0.56
	115	0.35	0.47	0.57	1.81	54.43	77.50	66.31	44.91	34.59	44.91	66.31	77.50	54.43	1.81	0.57
	120	0.37	0.48	0.59	2.13	54.37	77.74	68.27	50.36	40.56	50.36	68.27	77.74	54.37	2.13	0.59
	125	0.39	0.50	0.60	2.44	54.33	78.07	70.38	56.33	47.85	56.33	70.38	78.07	54.33	2.44	0.60
	130	0.40	0.51	0.61	2.82	54.42	78.33	72.41	61.72	55.15	61.72	72.41	78.33	54.42	2.82	0.61
	135	0.42	0.53	0.62	3.29	54.37	78.25	74.23	66.27	61.51	66.27	74.23	78.25	54.37	3.29	0.62
	140	0.44	0.55	0.64	4.00	54.32	77.99	75.96	70.32	66.72	70.32	75.96	77.99	54.32	4.00	0.64
	145	0.48	0.61	0.67	5.47	54.31	77.68	77.61	73.62	71.81	73.62	77.61	77.68	54.31	5.47	0.67
	150	0.54	0.68	1.71	8.07	53.98	76.50	78.62	75.90	75.33	75.90	78.62	76.50	53.98	8.07	1.71
	155	0.65	1.02	2.76	13.14	53.39	74.62	78.28	77.42	77.45	77.42	78.28	74.62	53.39	13.14	2.76
	160	1.91	2.64	4.27	21.01	53.62	73.21	78.07	79.01	79.65	79.01	78.07	73.21	53.62	21.01	4.27
	165	3.65	4.82	9.72	29.91	53.85	70.97	76.64	78.62	79.66	78.62	76.64	70.97	53.85	29.91	9.72
	170	10.40	15.27	24.18	38.54	53.99	67.53	73.50	76.24	76.33	76.24	73.50	67.53	53.99	38.54	24.18
	175	32.34	36.45	40.26	46.51	53.96	61.91	67.33	70.36	70.07	70.36	67.33	61.91	53.96	46.51	40.26
	180	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41	54.41

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

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	5041	5041
	45	10	14
	55	8	12
	65	6	10
	75	6	10
	85	6	11



### 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	88	83	79	86	81	77	73	68	64	61	55	53	50	44	42	40	35
2	85	75	68	62	77	69	63	57	58	53	48	47	43	40	37	34	32	27
3	76	65	57	50	70	60	52	46	50	44	39	40	36	32	32	28	26	21
4	70	57	48	41	63	53	45	38	44	38	33	36	31	27	28	24	21	17
5	64	51	42	35	58	47	39	32	39	32	28	32	27	23	25	21	18	15
6	58	45	36	30	53	42	34	28	35	28	24	28	23	20	22	19	16	13
7	54	41	32	26	49	37	30	24	31	25	21	26	21	17	20	17	14	11
8	50	37	28	23	46	34	26	21	28	22	18	23	19	15	19	15	12	10
9	46	33	25	20	42	31	24	19	26	20	16	21	17	13	17	14	11	9
10	43	31	23	18	40	28	21	17	24	18	14	20	15	12	16	12	10	8

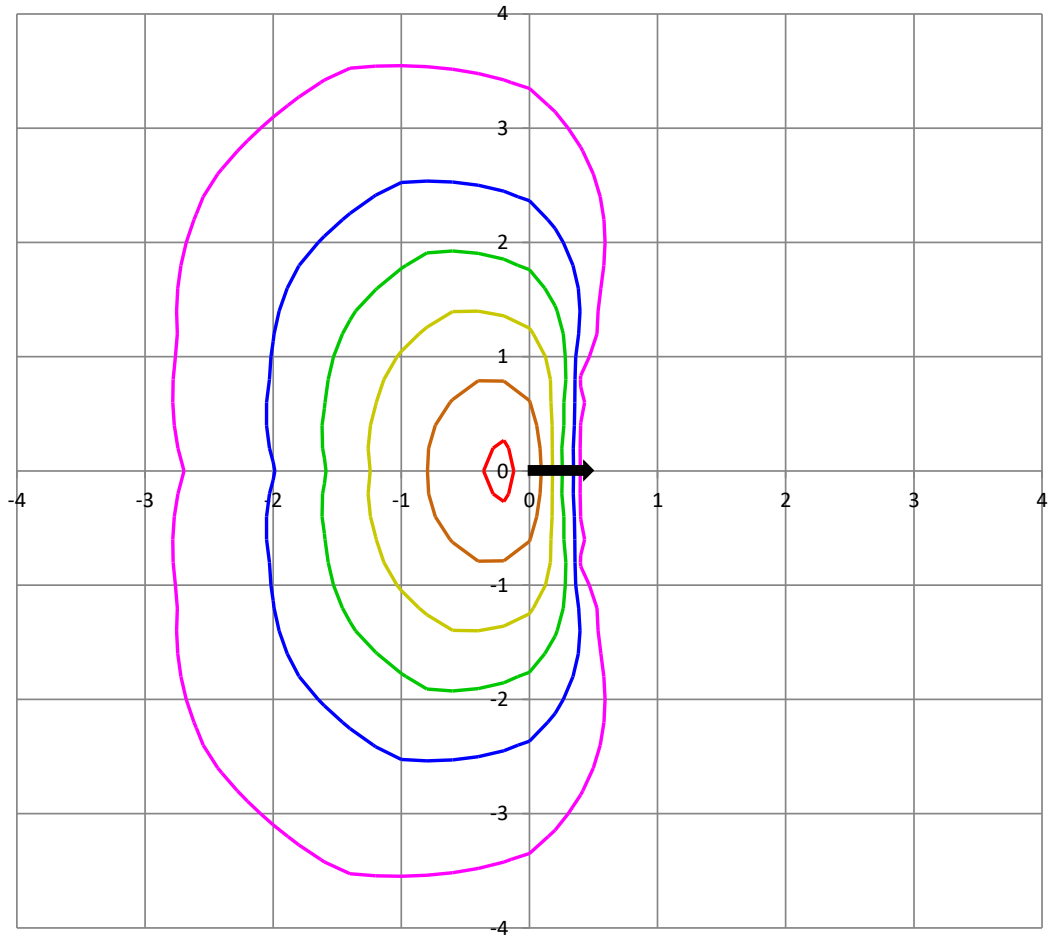
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	51.83 Candela
Central Cone Intensity:	N/A Candela
Beam Flux:	435.1 Lumens
Beam Angle (0-180):	N/A Degrees
Beam Angle (90-270):	N/A Degrees
Field Angle (0-180):	N/A Degrees
Field Angle (90-270):	N/A Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		3.24	4.81
6.00		1.44	7.22
8.00		0.810	9.63
10.0		0.518	12.0
12.0		0.360	14.4
14.0		0.264	16.8
16.0		0.202	19.3

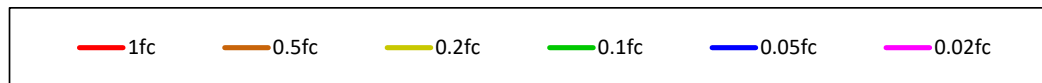


## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height







## In-Situ Test

### In-Situ Test Conditions

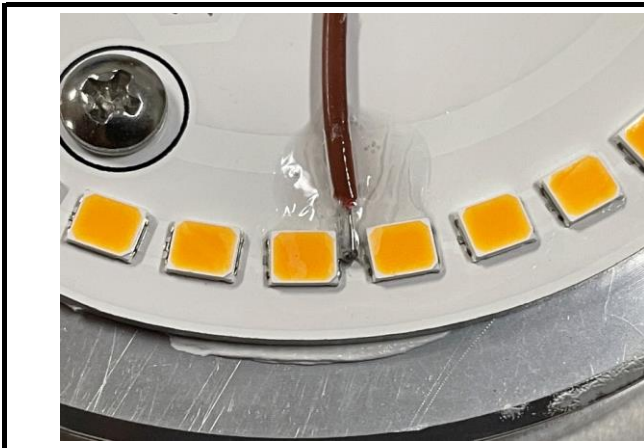
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.7 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

### Summary of Results

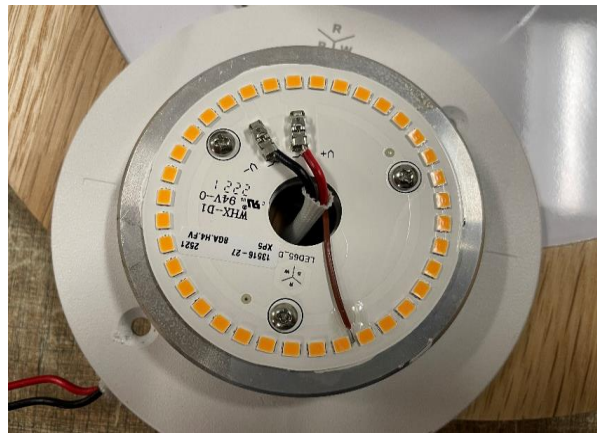
LED Temperature: 48.2 °C  
Driver Temperature: 41.6 °C  
Measured LED Current: 0.01114 A

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

### LED Temperature Location



### Thermocouple Reference



### Driver Temperature Location



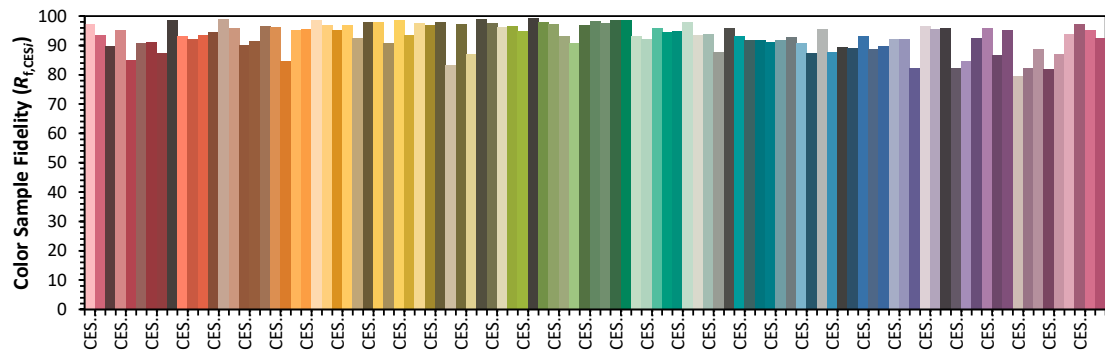
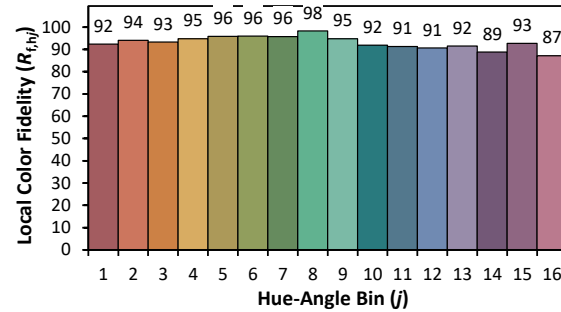
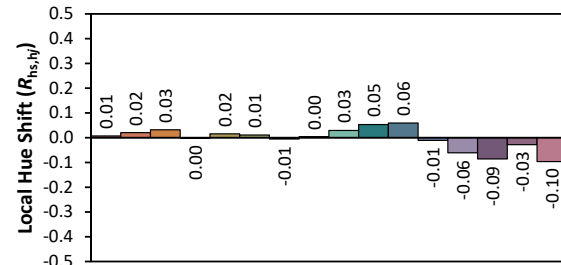
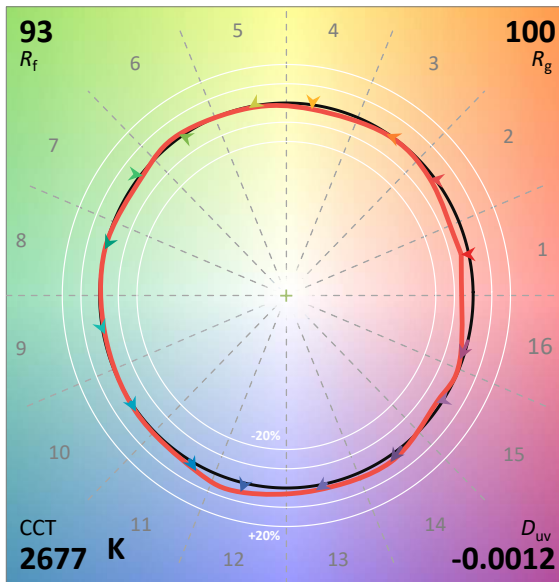
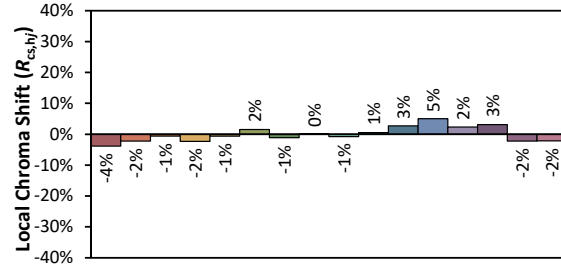
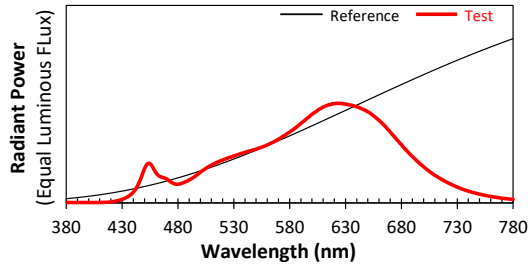
# ANSI/IES TM-30-18 Color Rendition Report

Date: 2021-10-11

Manufacturer: RBW Studio LLC

Model:

Radiant Disc 12"



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

x 0.4596  
y 0.4073  
u' 0.2638  
v' 0.5261

CIE 13.3-1995  
(CRI)

R<sub>a</sub> 95  
R<sub>g</sub> 68

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