



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



Photometric Test Report

Relevant Standards
IES LM-79-2008, ANSI C82.77-10-2014, 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 10"

Order Number
14026619
Test Number
14026619.02

Test Date
2021-10-07 - 2021-10-18

Prepared By

Cordaryl Cousar, Technician

Approved By

Kevin Rodriguez, Project Handler

The results contained in this report pertain only to the tested sample.
This report shall not be reproduced, except in full, without written approval of Underwriters Laboratories.
This report must not be used by the client to claim product certification, approval, or endorsement by
NVLAP, NIST, or any agency of the Federal Government.



Table of Contents

Summary of Results	Page 3
Integrating Sphere Results	Page 4
Distribution Results	
Conditions / Summary of Results / Polar Plot / Zonal Lumens	Page 5
Candela Tabulation / Average LuminanceFull TM-30 Report	Page 6
Coefficients of Utilization / Cone of Light	Page 7
ISOFootcandle Plot	Page 8
In-Situ Results	Page 9
Full TM-30 Report	Page 10

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: 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: 454.4 Lumens
Efficacy: 57 lm/w
CCT: 2683 K
CRI (Ra): 95.0

Distribution

Total Luminaire Output: 458.6 Lumens
Luminaire Efficacy: 57.5 lm/w
Maximum Candela: 80 Candela

Electrical Data at 120 VAC

Test Temperature: 24.9 °C
Voltage: 120.1 VAC
Current: 0.06759 A
Power: 7.972 W
Power Factor: 0.982
Frequency: 60 Hz
Current THD: 13.6 %

In-Situ

LED Temperature: 47.7 °C
Driver Temperature: 40.7 °C
Measured LED Current: 0.01135 A

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



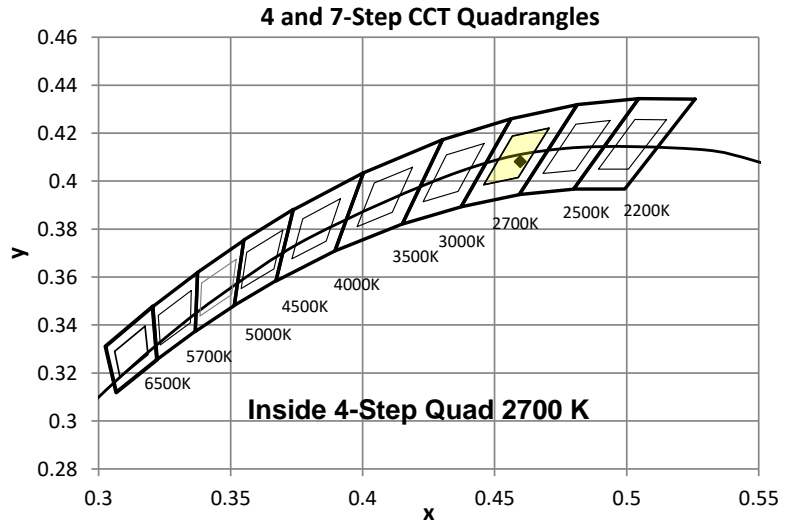
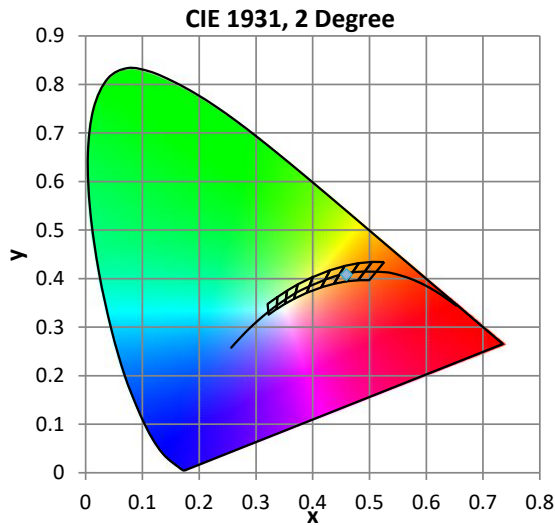
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.1 VAC	0.06759 A	7.972 W	0.982	60 Hz	13.6 %

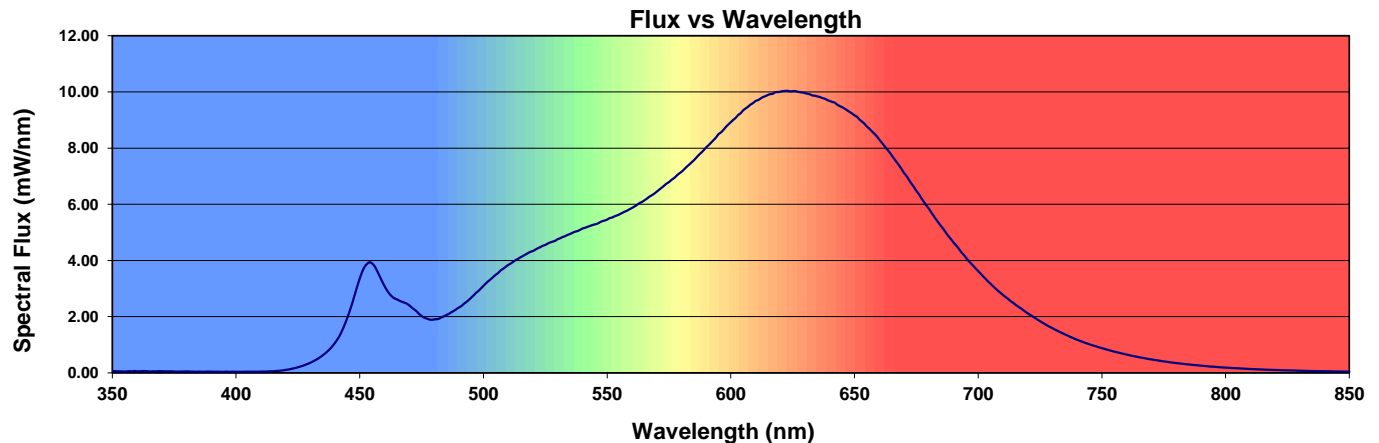
Summary of Results

Total Output:	454 Lumens	Chromaticity (x):	0.4596
Efficacy:	57.0 lm/w	Chromaticity (y):	0.4082
CCT:	2683 K	Chromaticity (u'):	0.2634
CRI (Ra):	95.0	Chromaticity (v'):	0.5264
CRI (R9):	67.7	TM-30 Rf:	93
Peak Wavelength:	622 nm	TM-30 Rg:	99
Dominant Wavelength:	585 nm	TM-30 Rcs,h1:	-4%
S/P Ratio:	1.31	Duv:	-0.0009
M/P Ratio:	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	96.2	98.9	98.9	96.0	96.3	97.1	92.2	84.6	67.7	96.7	97.9	86.6	97.4	99.3	92.1





Distribution - Goniophotometer

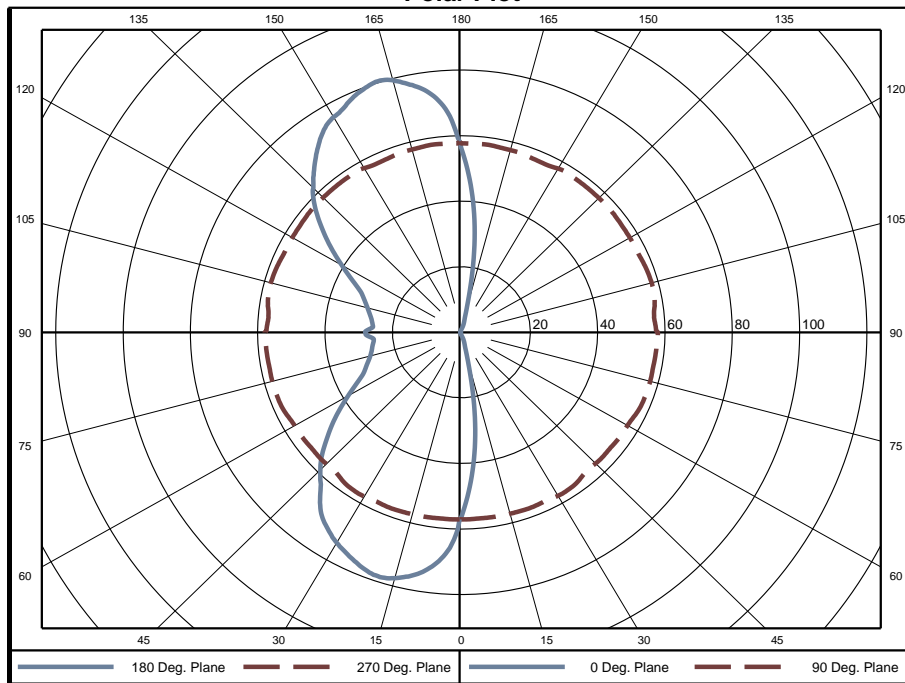
Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.1 °C	120.0 VAC	0.06771 A	7.982 W	0.982	60 Hz	13.6 %

Summary of Results

Spacing Criteria	Total Lumen Output:	458.6 Lumens
0-180: 0.30	Luminaire Efficacy:	57.5 lm/w
90-270: 1.54	Maximum Candela:	80 Candela
Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)		
Crosswise: 0	Endwise: 19	

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	1.36	0.3%	60-65	16.36	3.6%	120-125	16.48	3.6%
5-10	3.91	0.9%	65-70	16.59	3.6%	125-130	16.22	3.5%
10-15	6.05	1.3%	70-75	16.65	3.6%	130-135	15.70	3.4%
15-20	7.90	1.7%	75-80	16.65	3.6%	135-140	14.93	3.3%
20-25	9.64	2.1%	80-85	16.68	3.6%	140-145	13.96	3.0%
25-30	11.22	2.4%	85-90	16.79	3.7%	145-150	12.78	2.8%
30-35	12.64	2.8%	90-95	16.60	3.6%	150-155	11.28	2.5%
35-40	13.71	3.0%	95-100	16.64	3.6%	155-160	9.69	2.1%
40-45	14.47	3.2%	100-105	16.81	3.7%	160-165	8.00	1.7%
45-50	15.26	3.3%	105-110	16.79	3.7%	165-170	6.17	1.3%
50-55	15.80	3.4%	110-115	16.68	3.6%	170-175	4.01	0.9%
55-60	16.15	3.5%	115-120	16.59	3.6%	175-180	1.39	0.3%

Zone	Lumens	% of Luminaire
0-40	66	14.5%
0-60	128	27.9%
0-90	228	49.7%
90-180	231	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	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05	57.05
	5	42.27	41.60	45.67	50.87	57.06	63.54	67.08	68.79	70.06	68.79	67.08	63.54	57.06	50.87	45.67
	10	24.36	25.11	33.64	44.87	57.19	67.87	72.32	74.41	75.06	74.41	72.32	67.87	57.19	44.87	33.64
	15	9.18	10.57	20.76	38.58	57.29	70.84	75.58	77.38	77.69	77.38	75.58	70.84	57.29	38.58	20.76
	20	4.34	4.89	10.32	32.07	57.41	73.15	77.60	78.44	78.03	78.44	77.60	73.15	57.41	32.07	10.32
	25	2.79	3.20	5.53	25.33	57.29	74.58	78.21	77.12	75.95	77.12	78.21	74.58	57.29	25.33	5.53
	30	1.11	1.82	3.76	19.09	57.61	76.28	78.21	75.37	73.55	75.37	78.21	76.28	57.61	19.09	3.76
	35	0.63	0.68	2.81	13.62	57.52	77.20	76.96	72.79	70.16	72.79	76.96	77.20	57.52	13.62	2.81
	40	0.52	0.59	1.85	9.53	56.55	76.48	74.15	68.32	64.12	68.32	74.15	76.48	56.55	9.53	1.85
	45	0.44	0.54	0.90	7.10	56.44	76.65	72.32	63.95	58.26	63.95	72.32	76.65	56.44	7.10	0.90
	50	0.40	0.48	0.50	5.56	56.50	76.95	70.70	59.64	51.57	59.64	70.70	76.95	56.50	5.56	0.50
	55	0.36	0.45	0.47	4.57	56.70	77.20	69.15	54.38	44.62	54.38	69.15	77.20	56.70	4.57	0.47
	60	0.34	0.42	0.45	3.97	56.76	77.17	67.19	48.62	37.71	48.62	67.19	77.17	56.76	3.97	0.45
	65	0.32	0.42	0.45	3.64	57.43	77.82	66.05	43.63	32.06	43.63	66.05	77.82	57.43	3.64	0.45
	70	0.32	0.43	0.46	3.40	57.72	77.96	64.54	39.11	29.25	39.11	64.54	77.96	57.72	3.40	0.46
	75	0.32	0.44	0.46	3.23	57.75	77.68	62.94	35.28	27.32	35.28	62.94	77.68	57.75	3.23	0.46
	80	0.33	0.45	0.46	3.11	57.64	77.46	61.64	32.60	26.25	32.60	61.64	77.46	57.64	3.11	0.46
	85	0.36	0.48	0.47	3.06	57.81	77.47	61.24	31.26	25.46	31.26	61.24	77.47	57.81	3.06	0.47
	90	0.37	0.50	0.48	3.07	58.04	77.66	61.16	30.69	27.70	30.69	61.16	77.66	58.04	3.07	0.48
	95	0.37	0.48	0.47	3.00	57.16	75.99	60.56	31.48	25.81	31.48	60.56	75.99	57.16	3.00	0.47
	100	0.37	0.48	0.49	3.14	57.95	77.15	62.24	33.36	26.66	33.36	62.24	77.15	57.95	3.14	0.49
	105	0.37	0.49	0.51	3.31	58.20	77.65	63.79	36.07	28.14	36.07	63.79	77.65	58.20	3.31	0.51
	110	0.38	0.48	0.53	3.52	57.95	77.55	65.06	39.70	30.15	39.70	65.06	77.55	57.95	3.52	0.53
	115	0.39	0.49	0.54	3.79	57.57	77.27	66.49	44.29	33.70	44.29	66.49	77.27	57.57	3.79	0.54
	120	0.40	0.50	0.56	4.22	57.60	77.49	68.48	49.94	39.84	49.94	68.48	77.49	57.60	4.22	0.56
	125	0.42	0.51	0.57	4.86	57.61	77.85	70.67	56.05	47.25	56.05	70.67	77.85	57.61	4.86	0.57
	130	0.44	0.54	0.59	5.86	57.82	78.15	72.72	61.62	54.76	61.62	72.72	78.15	57.82	5.86	0.59
	135	0.45	0.56	1.04	7.46	57.79	78.08	74.55	66.38	61.43	66.38	74.55	78.08	57.79	7.46	1.04
	140	0.48	0.59	2.00	10.01	57.78	77.77	76.29	70.61	66.74	70.61	76.29	77.77	57.78	10.01	2.00
	145	0.55	0.69	2.88	14.03	57.80	77.36	77.96	73.99	71.97	73.99	77.96	77.36	57.80	14.03	2.88
	150	0.99	2.00	3.74	19.42	57.69	76.19	78.88	76.35	75.42	76.35	78.88	76.19	57.69	19.42	3.74
	155	2.58	3.26	5.45	25.69	57.08	74.33	78.55	77.87	77.61	77.87	78.55	74.33	57.08	25.69	5.45
	160	4.04	4.99	10.42	32.62	57.35	73.09	78.19	79.48	79.79	79.48	78.19	73.09	57.35	32.62	10.42
	165	8.21	11.51	21.59	39.39	57.53	71.28	76.62	78.95	79.74	78.95	76.62	71.28	57.53	39.39	21.59
	170	22.97	27.47	34.94	45.91	57.74	68.63	73.73	76.42	76.29	76.42	73.73	68.63	57.74	45.91	34.94
	175	41.68	44.27	47.11	51.90	57.71	64.25	68.70	71.30	70.94	71.30	68.70	64.25	57.71	51.90	47.11
	180	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21	58.21

Average Luminance (cd/m²)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	5548	5548
	45	11	3881
	55	8	3959
	65	7	4203
	75	7	4586
	85	8	5190



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	55	53	51	44	42	40	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	58	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	25	32	25	21	26	21	17	21	17	14	11
8	50	37	29	23	46	34	27	22	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	44	31	23	18	40	29	22	17	24	19	15	20	16	12	16	13	10	8

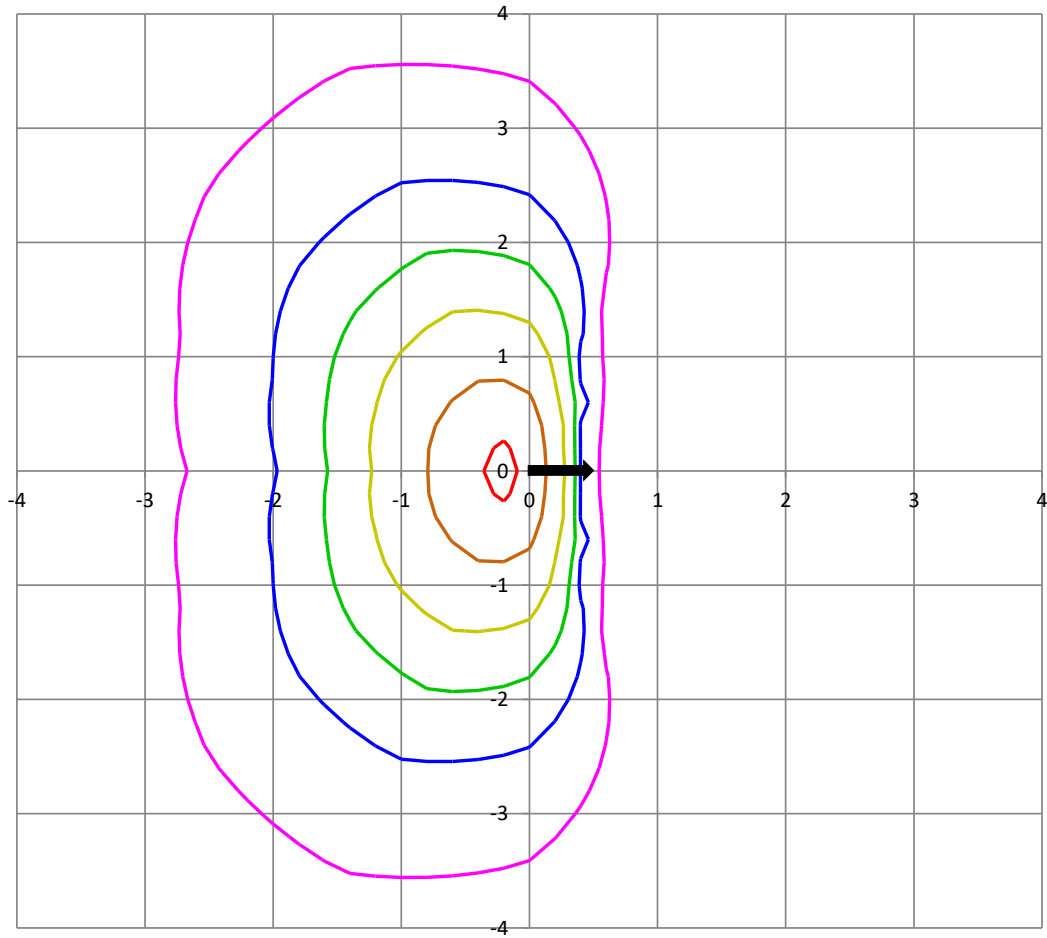
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	57.05 Candela
Central Cone Intensity:	N/A Candela
Beam Flux:	437.3 Lumens
Beam Angle (0-180):	80.6 Degrees
Beam Angle (90-270):	N/A Degrees
Field Angle (0-180):	N/A Degrees
Field Angle (90-270):	N/A Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		3.57	4.59
6.00		1.58	6.89
8.00		0.891	9.18
10.0		0.571	11.5
12.0		0.396	13.8
14.0		0.291	16.1
16.0		0.223	18.4

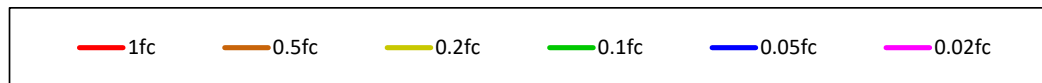


ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height





In-Situ Test

In-Situ Test Conditions

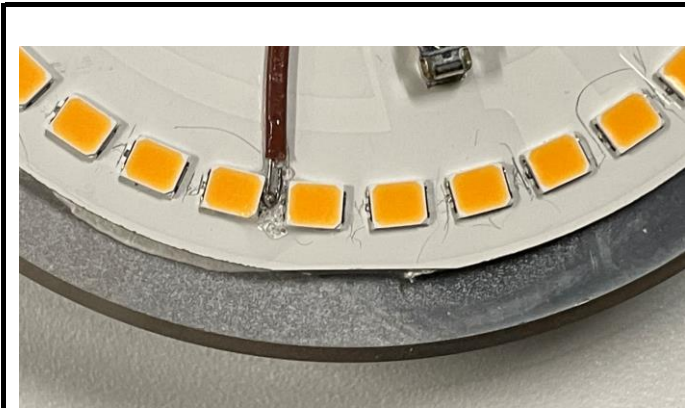
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
23.6 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

Summary of Results

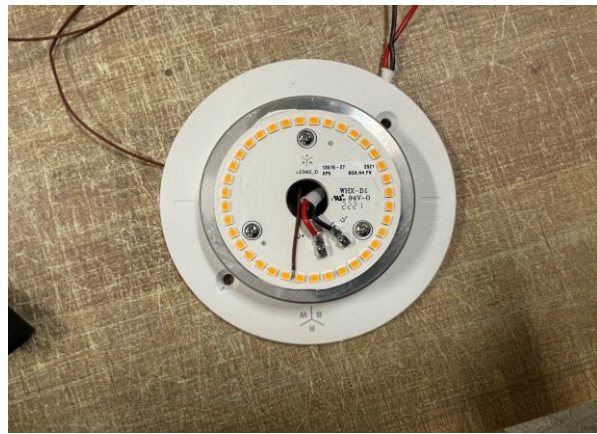
LED Temperature: 47.7 °C
Driver Temperature: 40.7 °C
Measured LED Current: 0.01135 A

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

LED Temperature Location



Thermocouple Reference



Driver Temperature Location



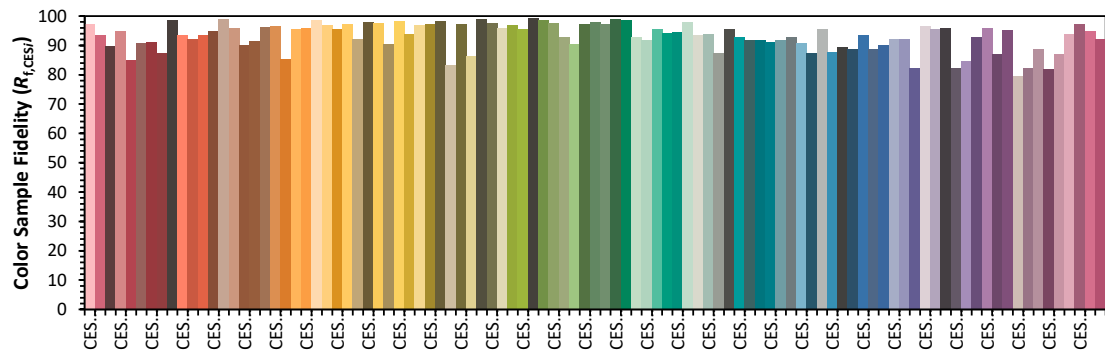
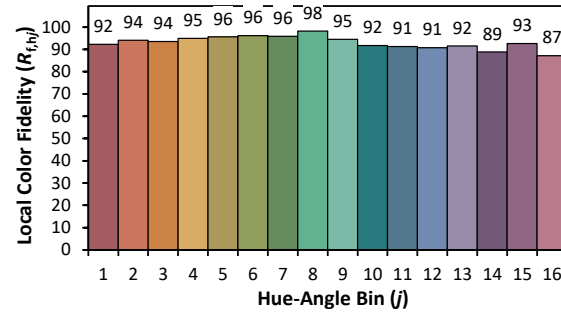
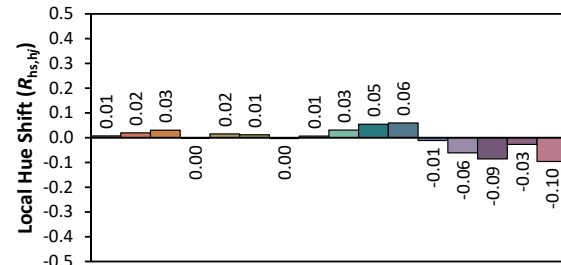
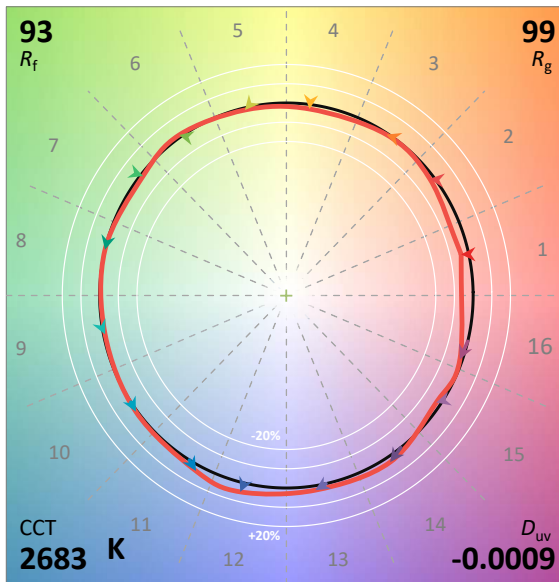
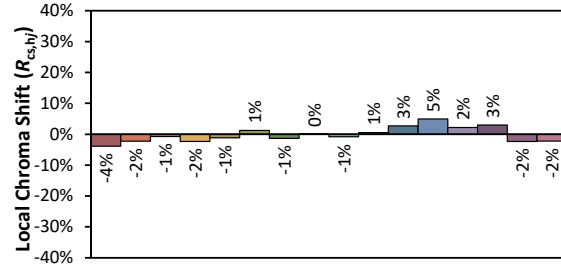
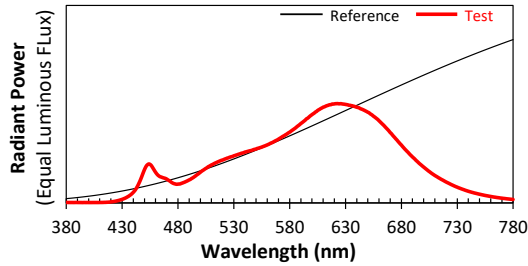
ANSI/IES TM-30-18 Color Rendition Report

Date: 2021-10-08

Manufacturer: RBW Studio LLC

Model:

Radiant Disc 10"



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

x 0.4596

y 0.4082

u' 0.2634

v' 0.5264

CIE 13.3-1995
(CRI)

R_a 95

R_g 68

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