



UL Verification Services  
Inc.  
7036 Snowdrift Road  
Allentown, PA 18106



## 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  
**Rig-A-Lite Partnership Ltd**  
8500 Hansen Rd  
Houston TX 77075

Catalog Number  
**CROLU24F814CRO4DA**

Order Number  
14765226  
Test Number  
14765226.02

Test Date  
2023-04-18 - 2023-04-24

Prepared By

Derek Smarr, Senior Technician

Approved By

Jesse Litchfield, Project Handler

The results contained in this report pertain only to the tested sample.  
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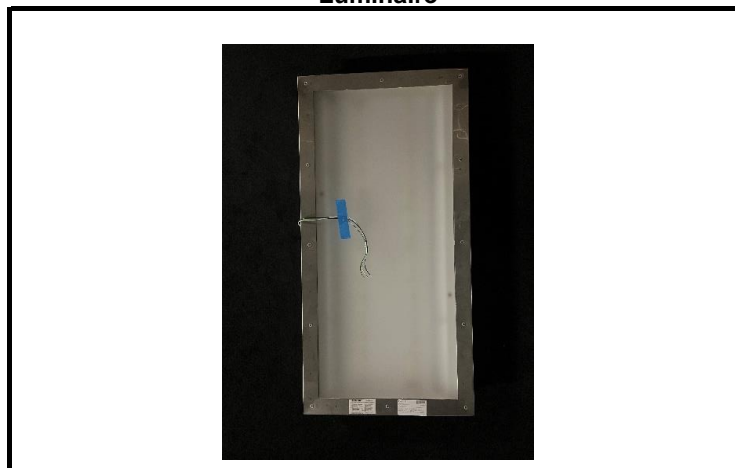
Laboratory results may not be representative of field performance  
Ballast factors have not been applied

Testing was performed in a 3-meter integrating sphere using the  $4\pi$  geometry method.

Absorption correction was employed for Sphere measurement

**Luminaire Description:** Grey aluminum housing, frosted lens enclosure  
**Lamp:** 336 White LEDs  
**Mounting:** Pendant  
**Ballast/Driver:** Advance XI054C150V054BST1

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 48.00 in.  
 Luminous Width: 24.00 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 14170 Lumens  
 Efficacy: 122.99 lm/w  
 CCT: 4096 K  
 CRI (Ra): 82.9

**Electrical Data at 120 VAC**

Test Temperature: 24.9 °C  
 Voltage: 120.0 VAC  
 Current: 0.9623 A  
 Power: 115.2 W  
 Power Factor: 0.998  
 Frequency: 60 Hz  
 Current THD: 5.10 %

**Distribution**

Total Luminaire Output: 14650 Lumens  
 Luminaire Efficacy: 127.1 lm/w  
 Maximum Candela: 5905 Candela

**In-Situ**

LED Temperature: 40.3 °C  
 Driver Temperature: 60.9 °C  
 Measured LED Current: 0.1069 A

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

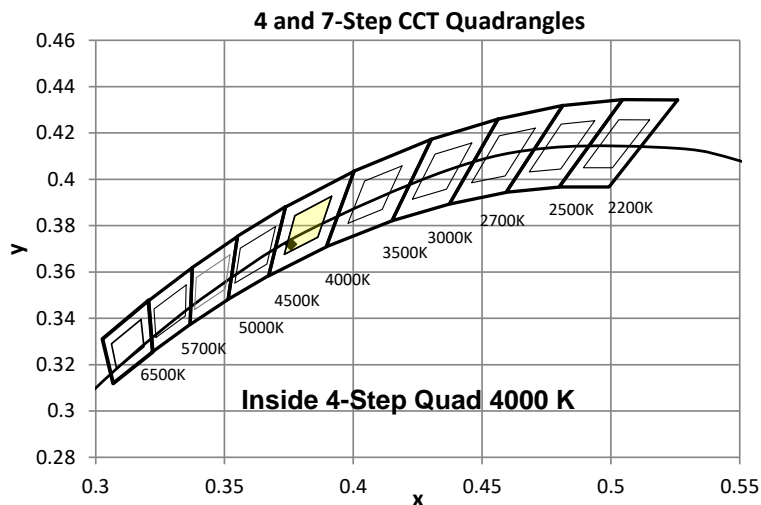
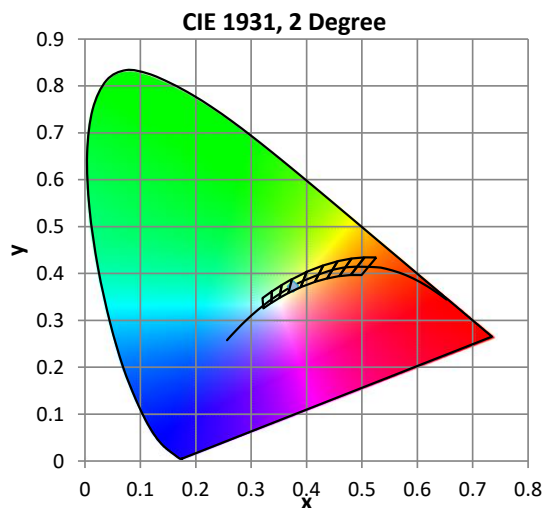
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.9623 A	115.2 W	0.998	60 Hz	5.10 %

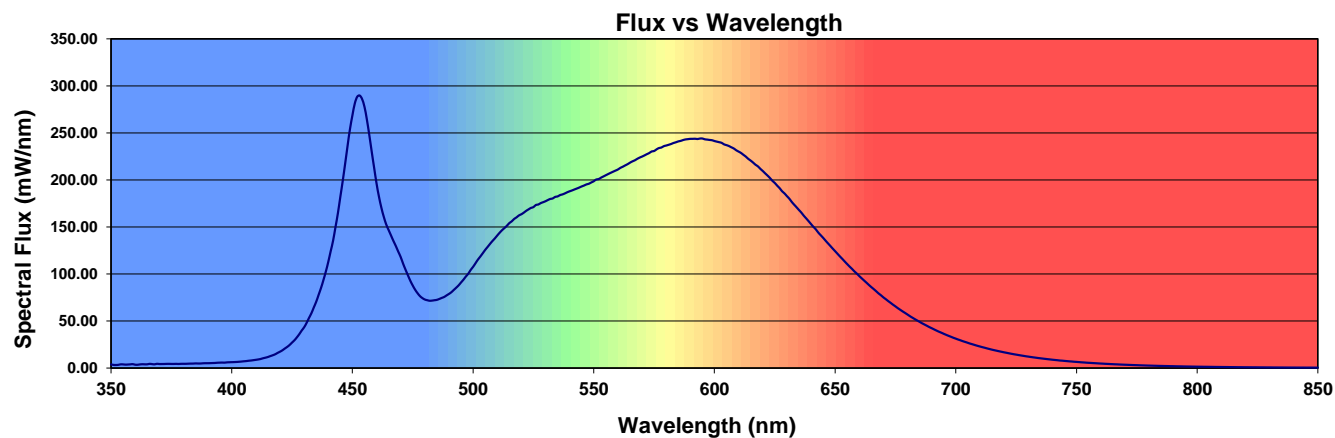
### Summary of Results

<b>Total Output:</b>	14170 Lumens	<b>Chromaticity (x):</b>	0.3757
<b>Efficacy:</b>	123.0 lm/w	<b>Chromaticity (y):</b>	0.3720
<b>CCT:</b>	4096 K	<b>Chromaticity (u'):</b>	0.2239
<b>CRI (Ra):</b>	82.9	<b>Chromaticity (v'):</b>	0.4988
<b>CRI (R9):</b>	9.8	<b>TM-30 Rf:</b>	83
<b>Peak Wavelength:</b>	453 nm	<b>TM-30 Rg:</b>	95
<b>Dominant Wavelength:</b>	555 nm	<b>TM-30 Rcs,h1:</b>	-12%
<b>S/P Ratio:</b>	1.71	<b>Duv:</b>	-0.0008
<b>M/P Ratio:</b>	0.7	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
82.9	81.5	89.3	94.1	81.3	81.2	84.4	86.1	65.2	9.8	73.6	79.7	60.3	83.5	96.8	75.8



## Distribution - Goniophotometer

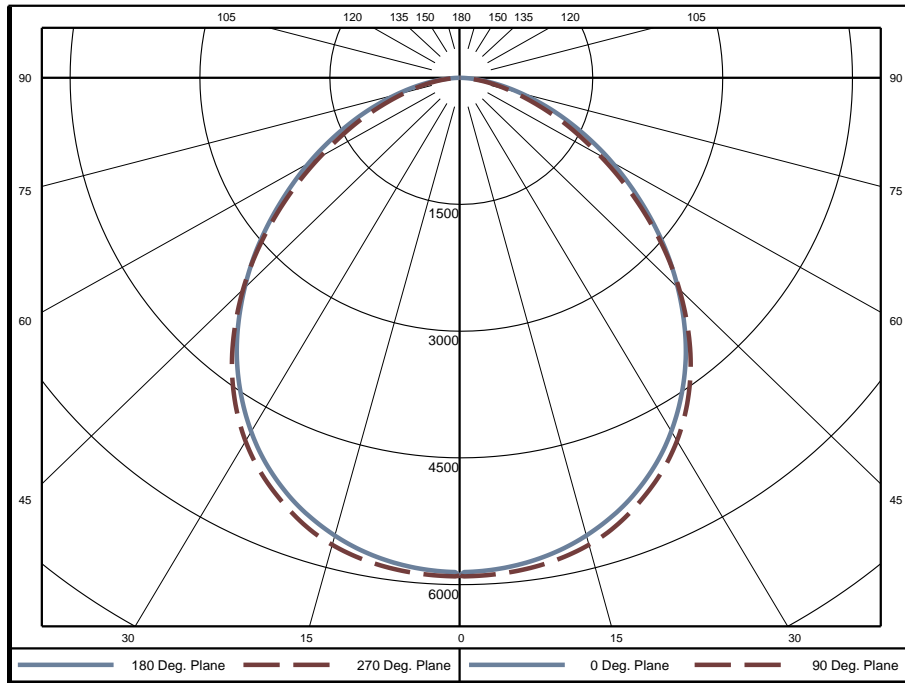
### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.6 °C	120.0 VAC	0.9632 A	115.3 W	0.998	60 Hz	5.05 %

### Summary of Results

<b>Spacing Criteria</b>	<b>Total Lumen Output:</b>	14650 Lumens
0-180: 1.21	<b>Luminaire Efficacy:</b>	127.1 lm/w
90-270: 1.25	<b>Maximum Candela:</b>	5905 Candela
<b>Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)</b>		
<b>Crosswise:</b> 21.3	<b>Endwise:</b> 20.7	

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	141	1.0%	60-65	824	5.6%	120-125	0	0.0%
5-10	418	2.9%	65-70	633	4.3%	125-130	0	0.0%
10-15	681	4.6%	70-75	445	3.0%	130-135	0	0.0%
15-20	920	6.3%	75-80	282	1.9%	135-140	0	0.0%
20-25	1123	7.7%	80-85	144	1.0%	140-145	0	0.0%
25-30	1282	8.8%	85-90	31	0.2%	145-150	0	0.0%
30-35	1385	9.5%	90-95	0	0.0%	150-155	0	0.0%
35-40	1427	9.7%	95-100	0	0.0%	155-160	0	0.0%
40-45	1403	9.6%	100-105	0	0.0%	160-165	0	0.0%
45-50	1319	9.0%	105-110	0	0.0%	165-170	0	0.0%
50-55	1183	8.1%	110-115	0	0.0%	170-175	0	0.0%
55-60	1012	6.9%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	7377	50.4%
0-60	12294	83.9%
0-90	14653	100.0%
90-180	0	0.0%

**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	5896	5896	5896	5896	5896	5896	5896	5896	5896	5896	5896	5896	5896	5896	5896
	5	5825	5876	5879	5886	5888	5886	5879	5876	5825	5876	5879	5886	5888	5886	5879
	10	5742	5796	5805	5825	5833	5825	5805	5796	5742	5796	5805	5825	5833	5825	5805
	15	5600	5655	5676	5711	5726	5711	5676	5655	5600	5655	5676	5711	5726	5711	5676
	20	5401	5456	5484	5526	5542	5526	5484	5456	5401	5456	5484	5526	5542	5526	5484
	25	5136	5194	5223	5270	5290	5270	5223	5194	5136	5194	5223	5270	5290	5270	5223
	30	4805	4860	4896	4952	4976	4952	4896	4860	4805	4860	4896	4952	4976	4952	4896
	35	4414	4466	4501	4554	4576	4554	4501	4466	4414	4466	4501	4554	4576	4554	4501
	40	3970	4016	4041	4084	4101	4084	4041	4016	3970	4016	4041	4084	4101	4084	4041
	45	3481	3519	3533	3557	3567	3557	3533	3519	3481	3519	3533	3557	3567	3557	3533
	50	2975	3003	3001	2998	2998	2998	3001	3003	2975	3003	3001	2998	2998	2998	3001
	55	2462	2482	2460	2430	2422	2430	2460	2482	2462	2482	2460	2430	2422	2430	2460
	60	1980	1984	1941	1888	1874	1888	1941	1984	1980	1984	1941	1888	1874	1888	1941
	65	1522	1524	1473	1412	1395	1412	1473	1524	1522	1524	1473	1412	1395	1412	1473
	70	1106	1096	1044	987	965	987	1044	1096	1106	1096	1044	987	965	987	1044
	75	734	723	678	633	618	633	678	723	734	723	678	633	618	633	678
	80	423	416	387	361	349	361	387	416	423	416	387	361	349	361	387
	85	169	166	149	129	119	129	149	166	169	166	149	129	119	129	149
	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	110	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
	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Average Luminance (cd/m<sup>2</sup>)**  
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	7933	7933
	45	6624	6787
	55	5775	5681
	65	4845	4441
	75	3816	3214
	85	2608	1843



### Coefficients of Utilization - Zonal Cavity Method

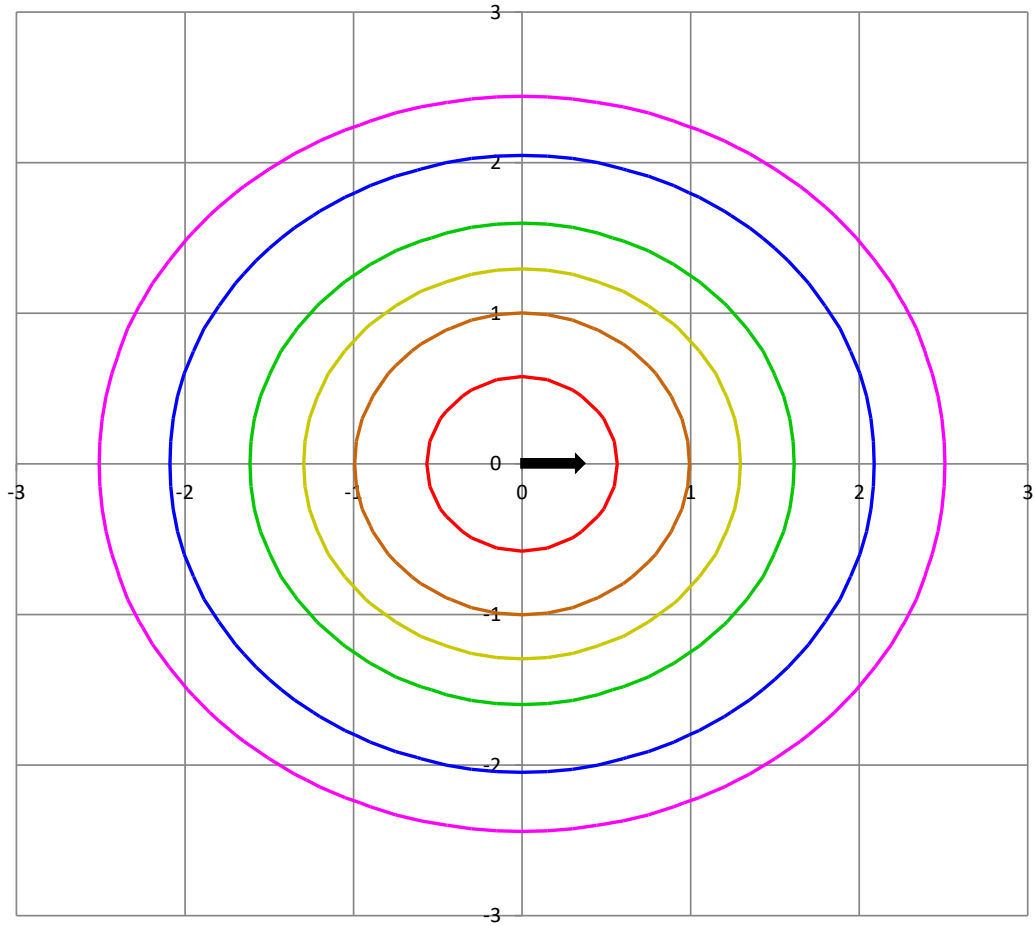
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88	86
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	75	73
3	92	82	74	68	90	80	73	68	78	71	66	75	70	65	72	68	64	62
4	85	73	65	58	82	72	64	58	69	63	57	67	61	56	65	60	56	54
5	78	66	57	51	76	65	56	50	62	55	50	61	54	49	59	53	49	47
6	72	59	51	45	70	58	50	44	57	49	44	55	49	44	53	48	43	41
7	67	54	46	40	65	53	45	39	52	44	39	50	44	39	49	43	39	37
8	63	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	40	33	29	39	33	29	27

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	5896 Candela
Central Cone Intensity:	5888 Candela
Beam Flux:	10210.0 Lumens
Beam Angle (0-180):	100.5 Degrees
Beam Angle (90-270):	100.9 Degrees
Field Angle (0-180):	154.4 Degrees
Field Angle (90-270):	150.9 Degrees

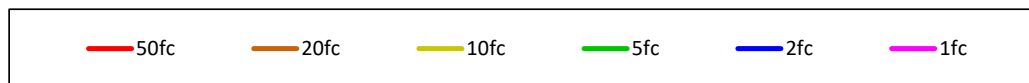
Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		369	4.93
6.00		164	7.39
8.00		92.1	9.86
10.0		59.0	12.3
12.0		40.9	14.8
14.0		30.1	17.3
16.0		23.0	19.7

## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height





## In-Situ Test

### In-Situ Test Conditions

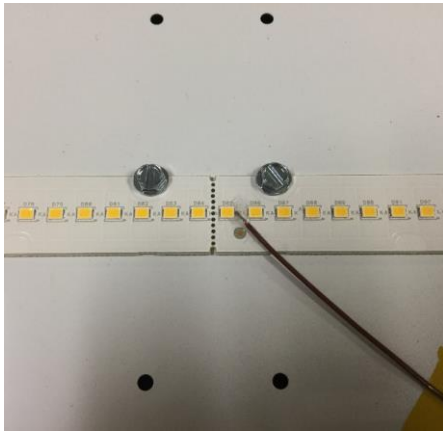
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.1 °C	120.0 VAC	N/A	N/A	N/A	60 Hz	N/A

### Summary of Results

LED Temperature: 40.3 °C  
 Driver Temperature: 60.9 °C  
 Measured LED Current: 0.1069 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

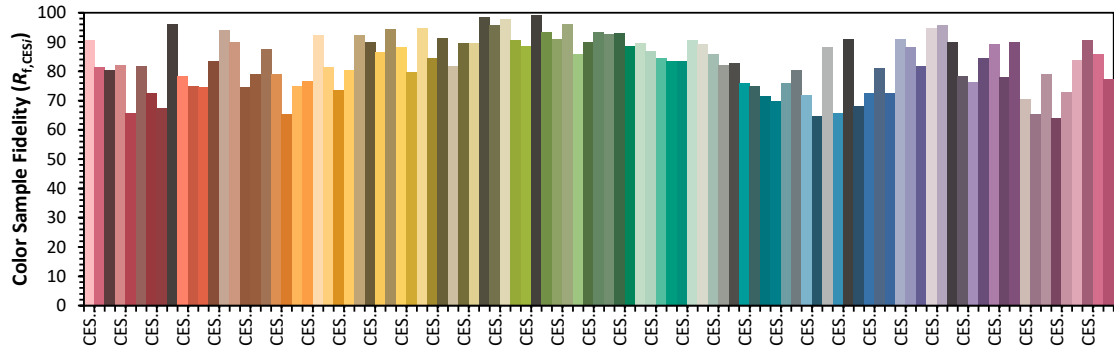
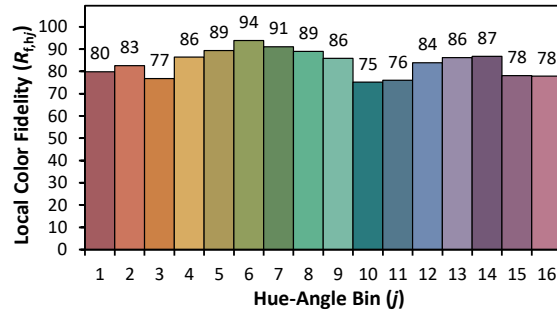
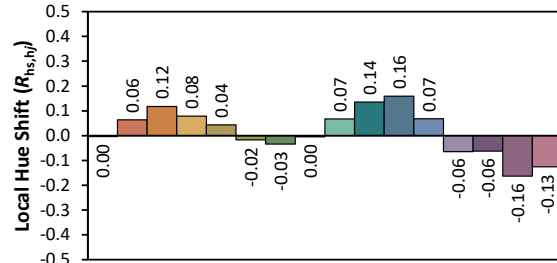
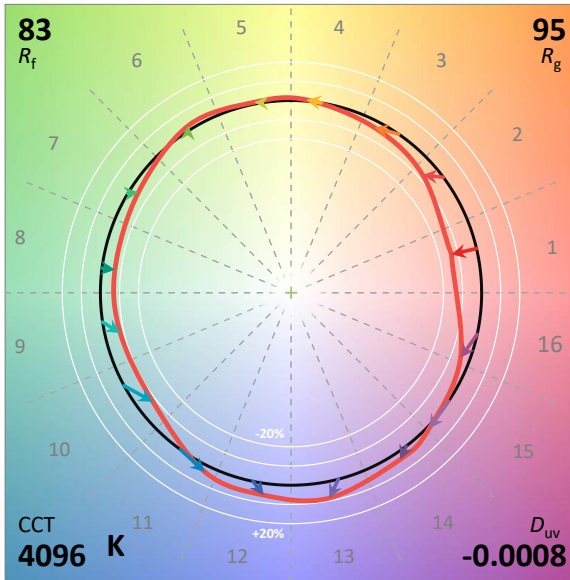
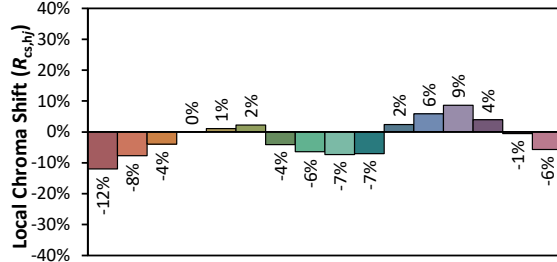
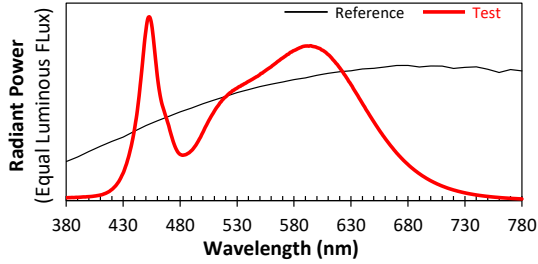
Date: 2023-04-19

Manufacturer:

Rig-A-Lite Partnership Ltd

Model:

CROLU24F814CRO4DA



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

x 0.3757

y 0.3720

u' 0.2239

v' 0.4988

CIE 13.3-1995  
(CRI)

R<sub>a</sub> 83

R<sub>9</sub> 10

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