

**LM-79-08 Test Report**  
For  
**RAB LIGHTING INC**

**(Brand Name: N/A)**

170 Ludlow Ave, PO BOX 970, Northvale, NJ 07647-2305 USA

**Model name(s):**  
**CRVFAD-18R/MVS/EM**

**Report Type:** Testing and Report According to IES LM-79-2008

**Type of  
Luminaire:** Downlights

**Report Date:** 2024-11-05

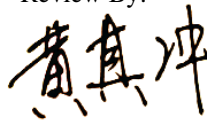
**Prepared By:**

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

<b>1.1 Rated Values:</b>	
Rated Voltage / Frequency	120V-277Vac, 60 Hz
Nominal Power	38.0W
Rated Initial Lamp Lumen	2240lm (mode 2700K)
Declared CCT	2700K/3000K/3500K/4000K/5000K

### 1.2 Test Specifications:

Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
Reference Work Instruction	QD25

### 1.3 Test Methods

<p><b>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</b> Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25°C ±1°C, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1°vertical intervals and 22.5°horizontal intervals.</p>
<p><b>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</b> Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25°C ±1°C. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm</p>
<p><b>3) Electrical Measurements:</b> Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25°C ±1°C. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.</p>

## 2.1.1 Electrical, Photometric and Chromaticity Measurements

<b>Test date</b>	2024-11-04	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	CRVFAD-18R/MVS/EM	2700K	

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411020022	120.0	60	0.274	32.60	0.994

### Chromaticity Measurement - Sphere-Spectroradiometer Method:

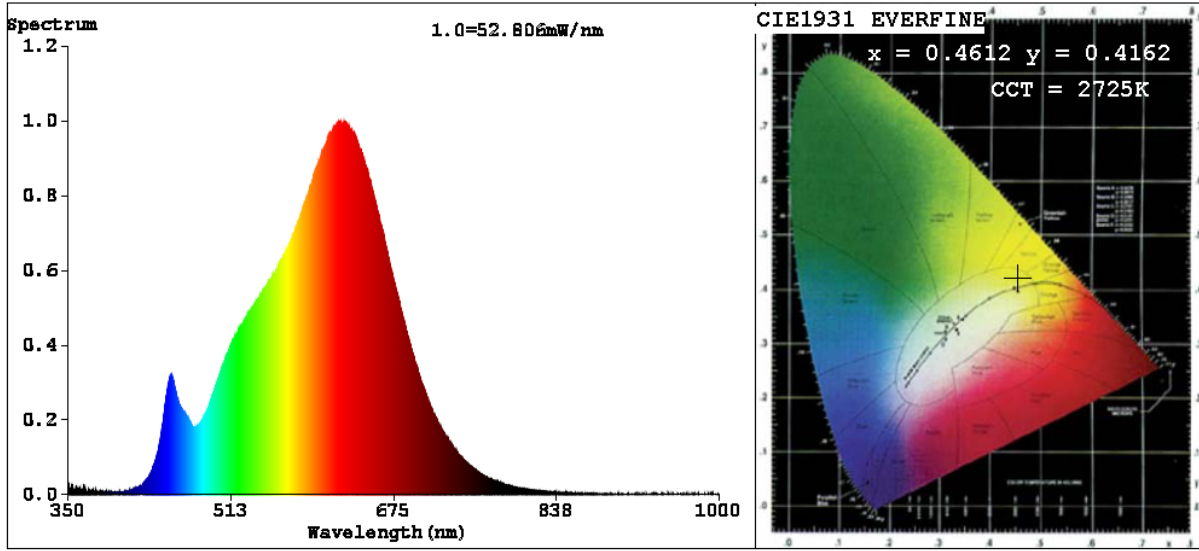
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	93	R9	59
Frequency (Hz)	60	R2	96	R10	91
CCT (K)	2725	R3	99	R11	96
Duv	0.0020	R4	94	R12	84
Chromaticity (x, y)	x=0.4612 y=0.4162	R5	93	R13	94
Chromaticity (u', v')	u'=0.2608 v'=0.5297	R6	97	R14	98
Color Rendering Index (CRI)	93.3	R7	93	R15	88
R9	59	R8	82	--	--
Rg	98				
Rf	93				
Rcs,h1%	-5				

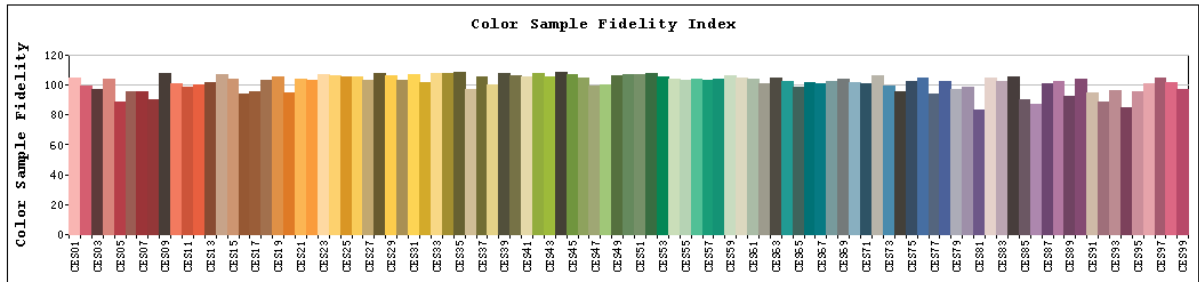
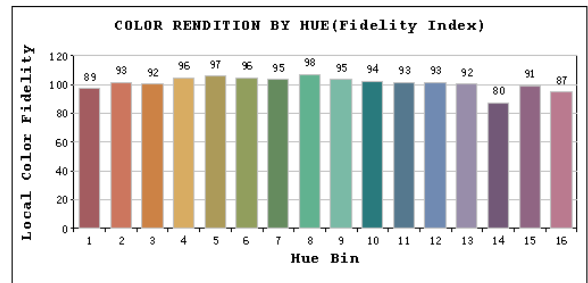
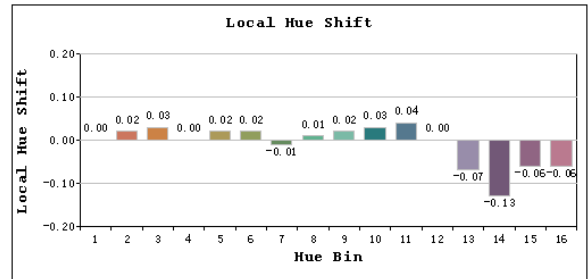
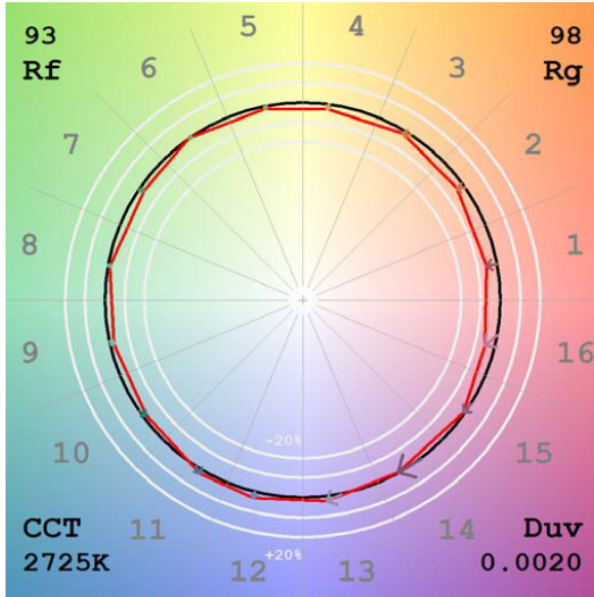
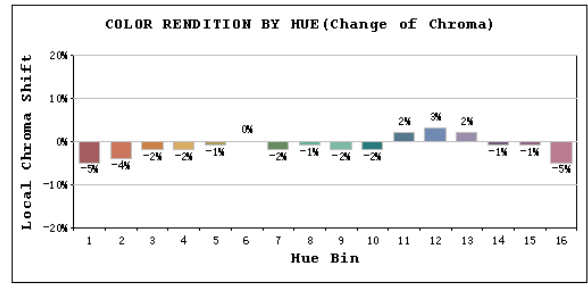
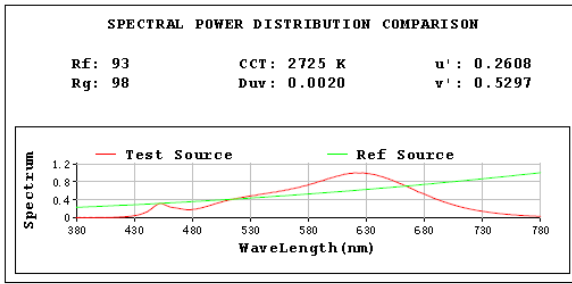
### Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2423.6
Luminous Efficacy (lm/W)	74.34
Beam Angle (°)	123.5
Center Beam Candle Power (cd)	649.4

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2421.0
Luminous Efficacy (lm/W)	72.42

# Spectral Power Distribution & Chromaticity Diagram





# Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	514.4	21.2%
0-40	855.3	35.3%
0-60	1571.7	64.8%
60-90	645.0	26.6%
70-100	433.5	17.9%
90-120	148.5	6.1%
0-90	2216.7	91.5%
90-180	206.9	8.5%
0-180	2423.6	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	61.6	2.5%	90-100	79.4	3.3%
10-20	178.0	7.3%	100-110	41.3	1.7%
20-30	274.9	11.3%	110-120	27.8	1.1%
30-40	340.9	14.1%	120-130	22.8	0.9%
40-50	367.3	15.2%	130-140	16.7	0.7%
50-60	349.1	14.4%	140-150	10.5	0.4%
60-70	290.9	12.0%	150-160	5.4	0.2%
70-80	214.6	8.9%	160-170	2.3	0.1%
80-90	139.6	5.8%	170-180	0.7	0.0%

## Photometric Data

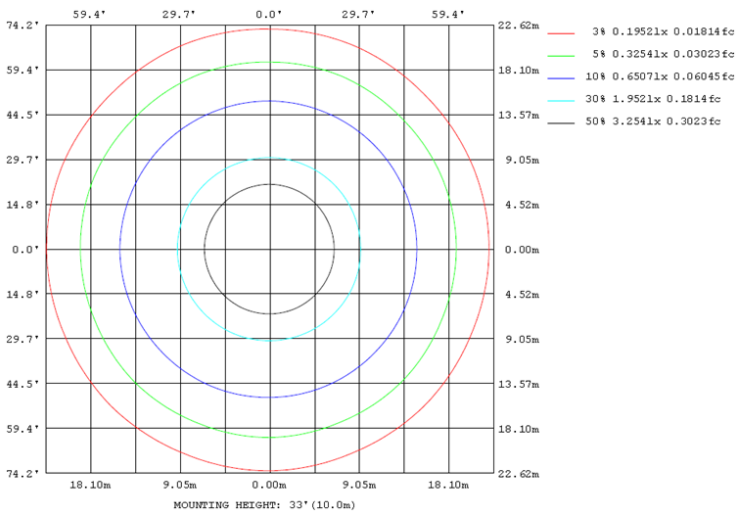
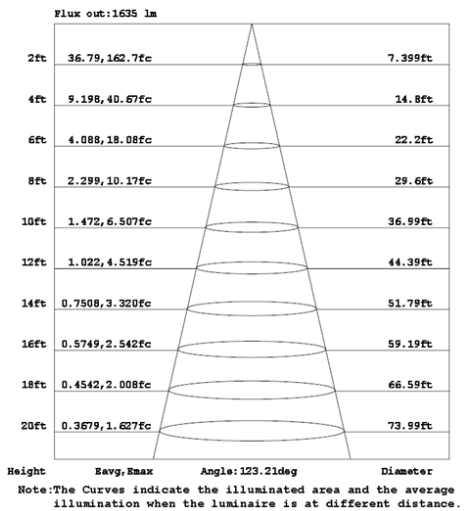
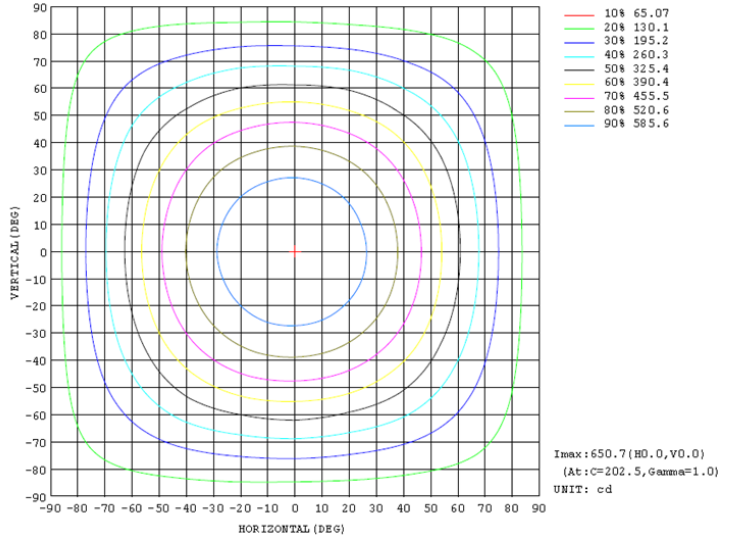
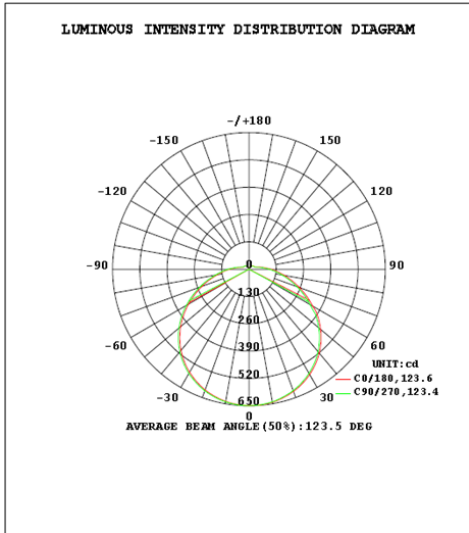


Table--1

UNIT: cd

γ (DEG)	C (DEG)															
	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	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649
5	646	646	646	647	647	648	648	648	648	648	647	647	647	646	646	646
10	639	639	639	640	641	642	642	643	642	642	641	641	640	639	639	639
15	627	628	628	630	630	632	632	632	633	632	632	630	630	629	628	628
20	611	612	613	615	616	618	618	619	619	618	617	615	615	613	613	612
25	591	592	593	595	596	599	599	600	601	599	598	596	595	594	593	592
30	566	568	568	571	573	576	577	578	579	577	576	573	572	570	569	567
35	537	539	540	543	545	549	549	551	552	550	549	546	544	541	540	539
40	504	506	507	511	513	517	518	520	521	519	517	513	512	509	508	505
45	467	469	470	474	477	481	483	485	486	483	481	477	475	472	470	468
50	425	428	429	433	436	441	442	445	446	443	441	436	434	431	429	427
55	380	383	384	389	392	397	399	402	403	400	397	392	390	386	385	382
60	333	330	337	336	345	344	352	349	350	353	344	345	337	338	331	334
65	285	283	289	288	297	297	304	301	303	305	297	297	289	290	283	286
70	239	237	243	243	250	250	256	254	256	258	251	250	243	243	237	239
75	194	195	200	200	206	206	211	210	212	213	207	206	200	199	194	194
80	154	157	158	161	163	166	167	169	171	169	167	163	161	156	155	153
85	121	124	124	127	128	131	131	133	136	134	132	128	126	122	120	119
90	91.7	94.5	94.7	96.8	98.4	101	100	102	104	103	101	97.3	95.9	92.5	90.8	90.0
95	67.1	69.8	69.8	71.8	72.8	74.8	74.3	75.9	77.9	76.8	75.0	71.9	70.7	67.7	66.4	65.6
100	48.1	50.1	50.4	51.7	52.4	53.9	53.8	55.0	56.6	55.8	54.5	52.0	51.1	48.9	47.8	47.0
105	35.6	36.7	36.7	37.5	38.1	39.2	39.3	40.2	41.3	40.8	39.8	38.3	37.6	36.3	35.3	34.5
110	29.4	29.6	29.1	29.3	30.1	30.8	30.7	31.2	32.0	31.8	30.9	30.0	30.2	29.8	29.1	28.6
115	28.3	27.9	27.2	27.1	27.7	28.0	27.8	27.7	28.2	28.1	27.4	27.1	27.8	28.2	28.2	27.9
120	27.3	26.9	26.4	26.5	27.0	27.5	27.4	27.4	27.5	27.2	26.5	26.2	26.7	27.1	27.1	26.8
125	25.5	25.2	24.7	24.9	25.6	26.2	26.2	26.1	26.3	25.8	24.9	24.5	25.0	25.4	25.4	25.2
130	23.5	23.3	22.9	23.1	23.8	24.5	24.5	24.5	24.5	23.9	23.1	22.6	23.1	23.4	23.5	23.4
135	21.3	21.1	20.8	21.1	21.8	22.5	22.6	22.6	22.5	21.8	21.0	20.6	20.9	21.2	21.4	21.3
140	18.8	18.6	18.5	18.8	19.4	20.2	20.4	20.4	20.2	19.5	18.8	18.3	18.6	18.7	19.0	18.9
145	16.1	16.0	16.0	16.4	16.9	17.6	17.9	18.0	17.7	17.0	16.4	16.0	16.1	16.2	16.4	16.4
150	13.4	13.3	13.3	13.8	14.2	14.9	15.3	15.4	15.1	14.4	13.9	13.6	13.6	13.6	13.8	13.7
155	10.8	10.7	10.7	11.1	11.6	12.2	12.5	12.7	12.4	11.8	11.5	11.2	11.1	11.1	11.2	11.0
160	8.77	8.76	8.77	8.94	9.17	9.61	9.84	9.99	9.87	9.55	9.35	9.13	9.05	8.97	8.94	8.83
165	7.73	7.74	7.76	7.81	7.91	8.05	8.14	8.23	8.25	8.15	8.11	8.03	7.98	7.89	7.83	7.74
170	7.05	7.05	7.03	7.07	7.15	7.22	7.25	7.32	7.37	7.33	7.27	7.23	7.21	7.18	7.08	7.01
175	6.50	6.51	6.50	6.58	6.65	6.69	6.71	6.74	6.77	6.73	6.70	6.60	6.60	6.58	6.58	6.53
180	6.15	6.15	6.14	6.14	6.15	6.15	6.14	6.14	6.14	6.14	6.15	6.14	6.14	6.14	6.14	6.14

## 2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-04	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CRVFAD-18R/MVS/EM	3000K	

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411020022	120.0	60	0.273	32.50	0.994

### Chromaticity Measurement - Sphere-Spectroradiometer Method:

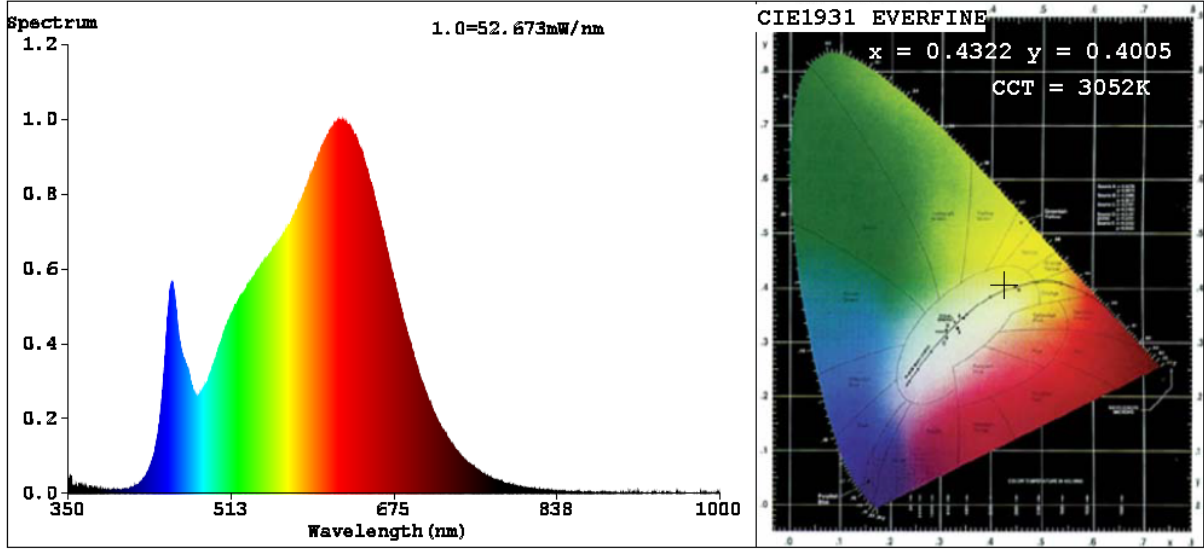
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	69
Frequency (Hz)	60	R2	98	R10	95
CCT (K)	3052	R3	99	R11	96
Duv	-0.0008	R4	95	R12	83
Chromaticity (x, y)	x=0.4322 y=0.4005	R5	95	R13	97
Chromaticity (u', v')	u'=0.2491 v'=0.5193	R6	97	R14	99
Color Rendering Index (CRI)	94.9	R7	93	R15	92
R9	69	R8	86	--	--
Rg	100				
Rf	93				
Rcs,h1%	-4				

### Photometric Measurement – Goniophotometer Method:

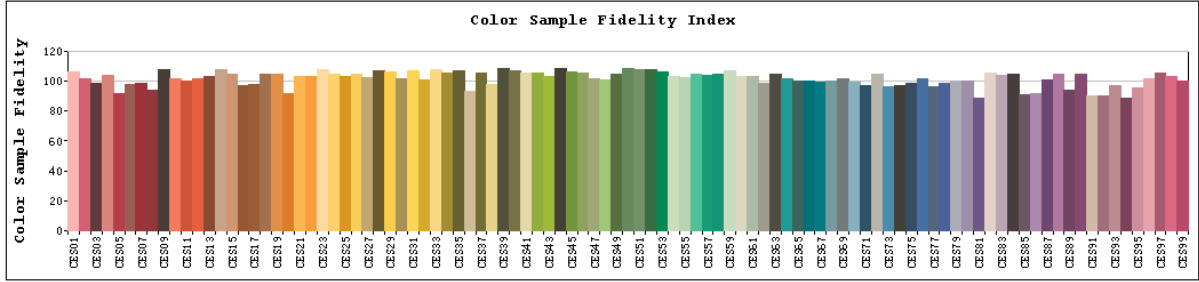
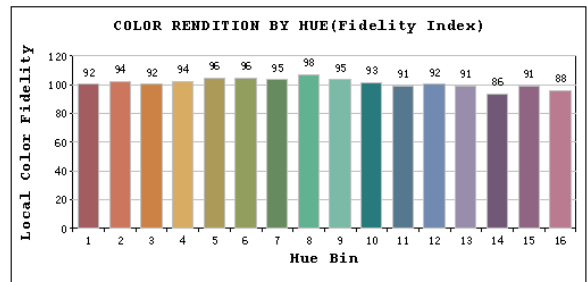
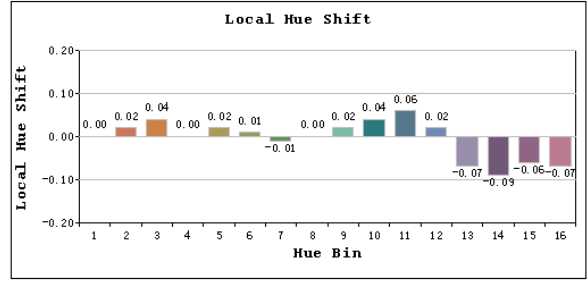
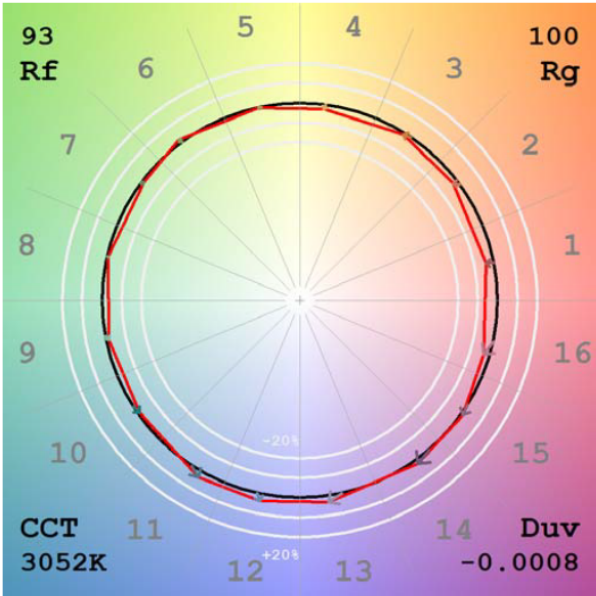
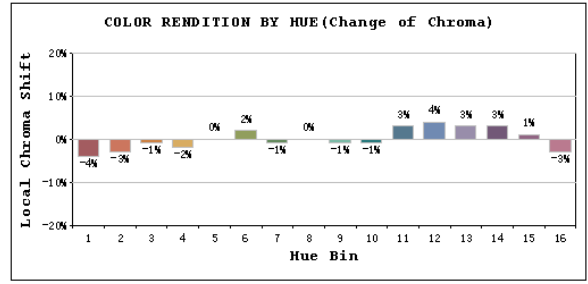
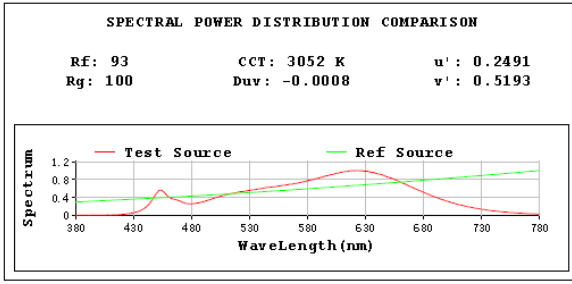
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2602.1
Luminous Efficacy (lm/W)	80.07

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2594.0
Luminous Efficacy (lm/W)	79.18

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.3 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-11-04	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	CRVFAD-18R/MVS/EM	3500K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202411020022	120.0	60	0.266	31.70	0.994

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

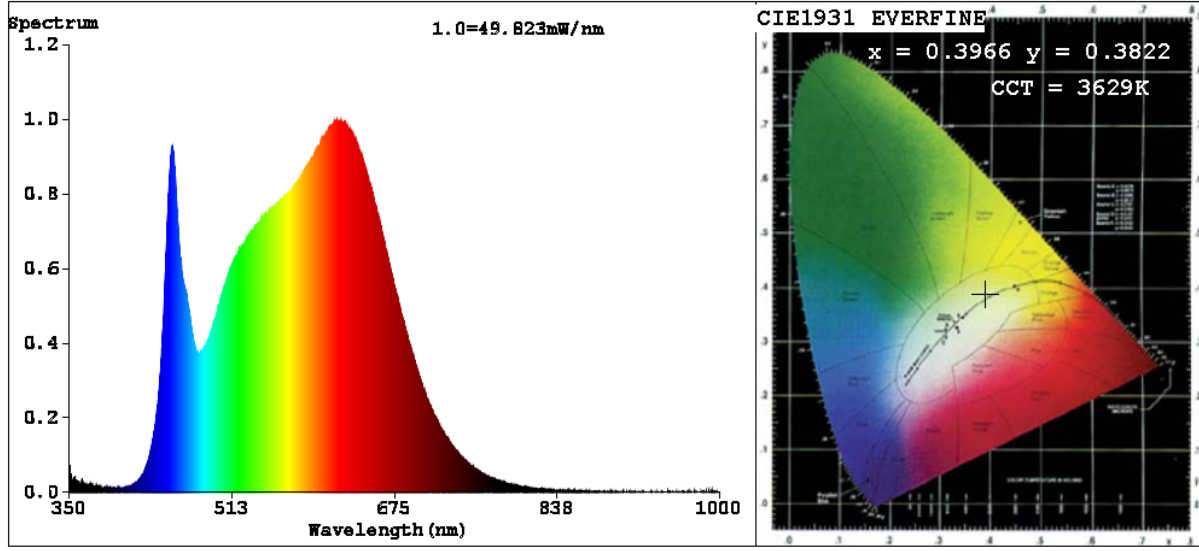
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	76
Frequency (Hz)	60	R2	99	R10	95
CCT (K)	3629	R3	98	R11	96
Duv	-0.0018	R4	96	R12	78
Chromaticity (x, y)	x=0.3966 y=0.3822	R5	96	R13	98
Chromaticity (u', v')	u'=0.2335 v'=0.5064	R6	96	R14	98
Color Rendering Index (CRI)	95.6	R7	95	R15	95
R9	76	R8	90	--	--
Rg	100				
Rf	93				
Rcs,h1%	-3				

**Photometric Measurement – Goniophotometer Method:**

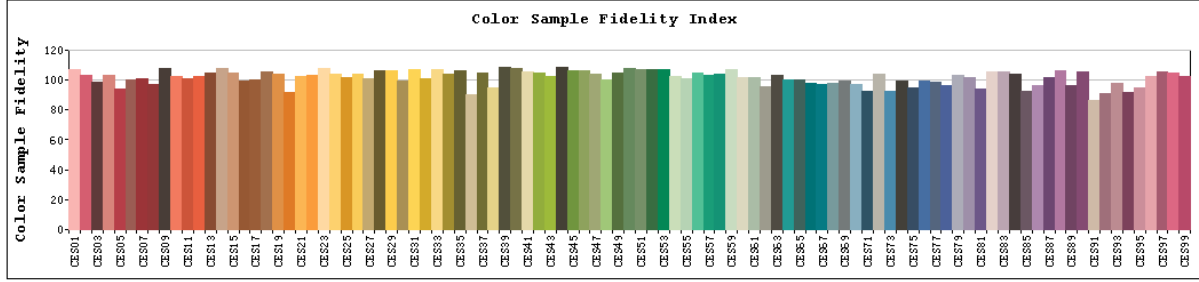
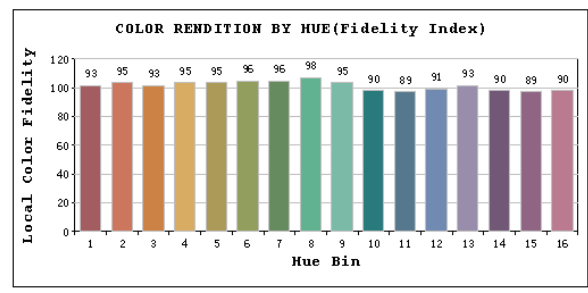
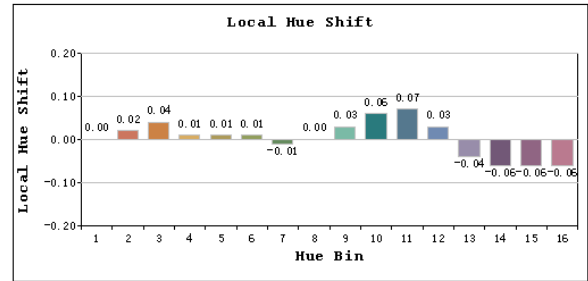
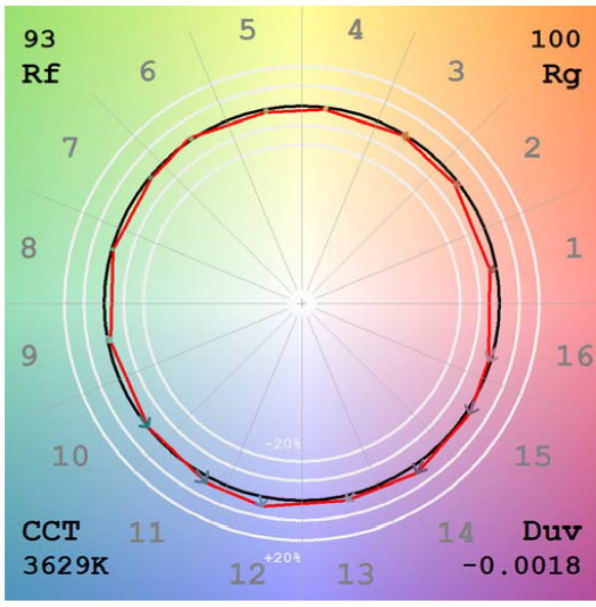
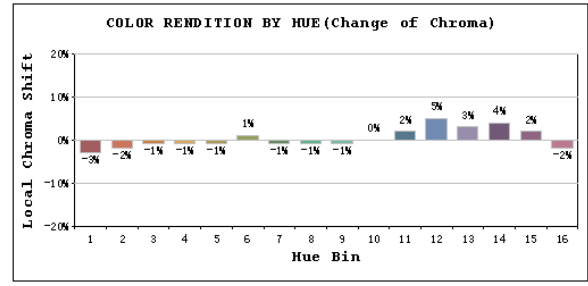
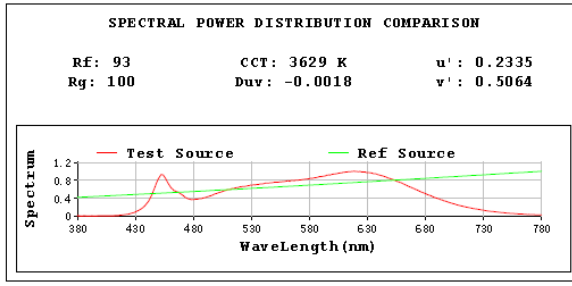
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2779.9
Luminous Efficacy (lm/W)	87.69

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2778.0
Luminous Efficacy (lm/W)	84.82

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.4 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-11-04	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	CRVFAD-18R/MVS/EM	4000K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202411020022	120.0	60	0.270	32.20	0.994

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

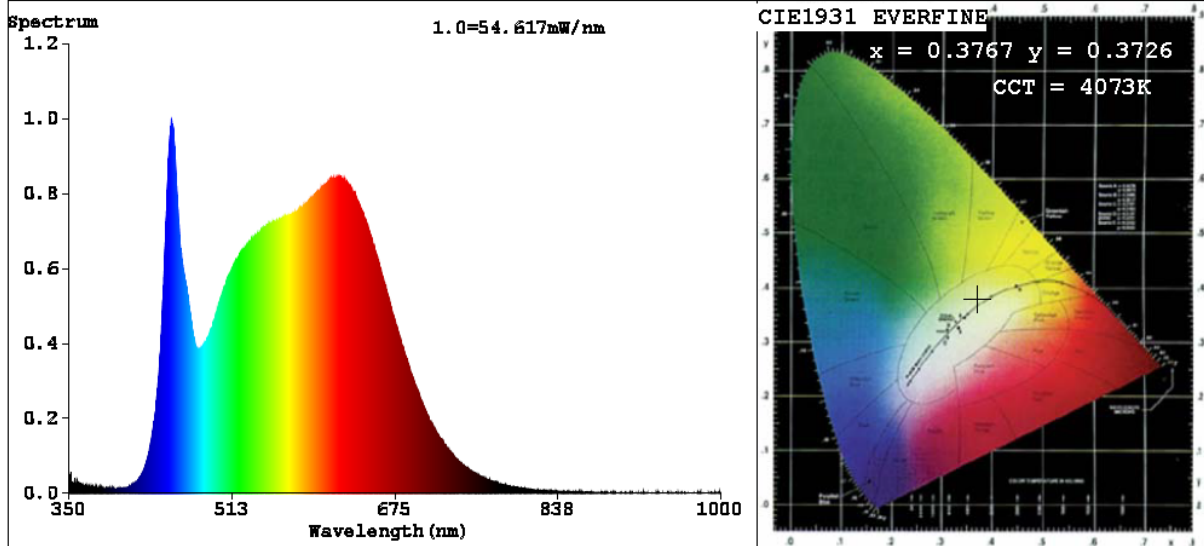
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	76
Frequency (Hz)	60	R2	98	R10	93
CCT (K)	4073	R3	97	R11	95
Duv	-0.0009	R4	95	R12	74
Chromaticity (x, y)	x=0.3767 y=0.3726	R5	95	R13	97
Chromaticity (u', v')	u'=0.2243 v'=0.4992	R6	95	R14	98
Color Rendering Index (CRI)	95.1	R7	95	R15	94
R9	76	R8	90	--	--
Rg	100				
Rf	93				
Rcs,h1%	-4				

**Photometric Measurement – Goniophotometer Method:**

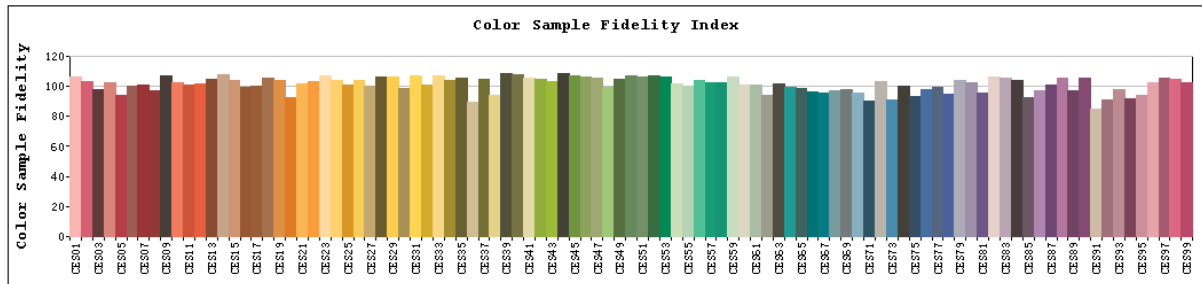
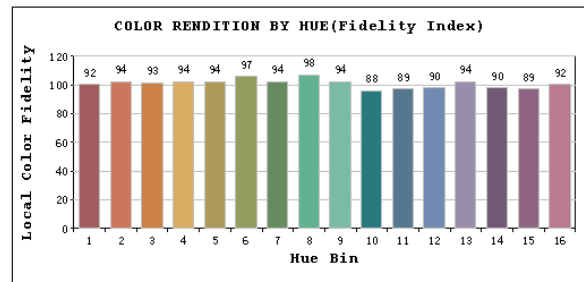
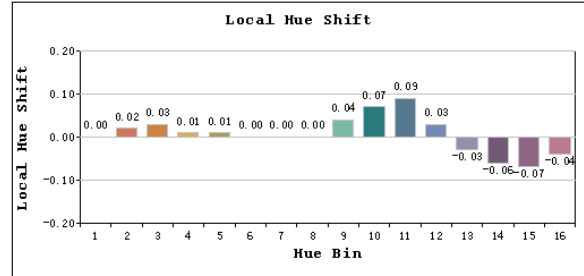
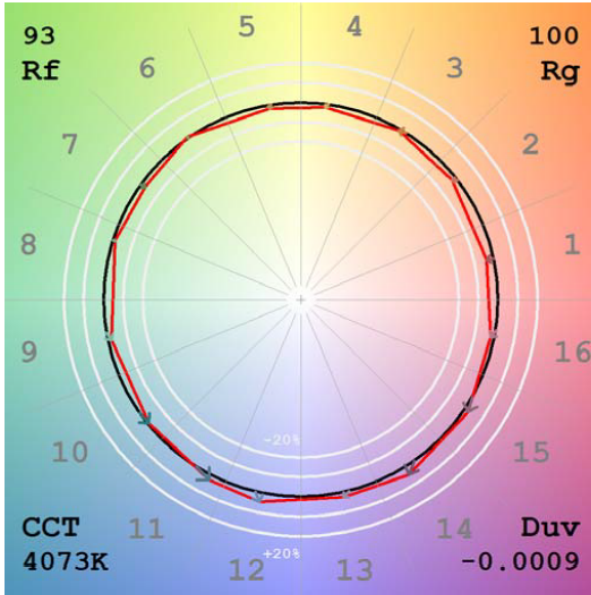
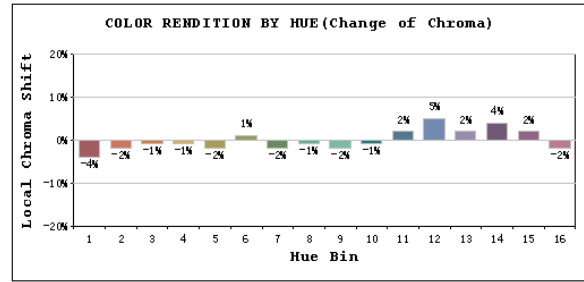
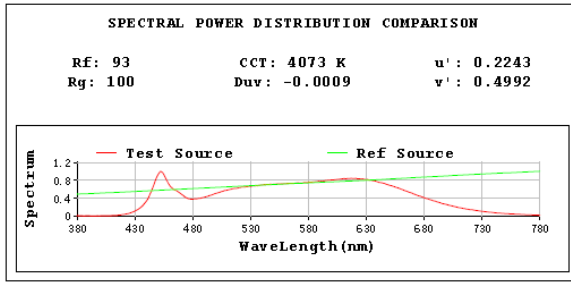
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2800.2
Luminous Efficacy (lm/W)	86.96

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2793.0
Luminous Efficacy (lm/W)	87.77

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.5 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-11-04	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	CRVFAD-18R/MVS/EM	5000K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202411020022	120.0	60	0.273	32.60	0.994

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

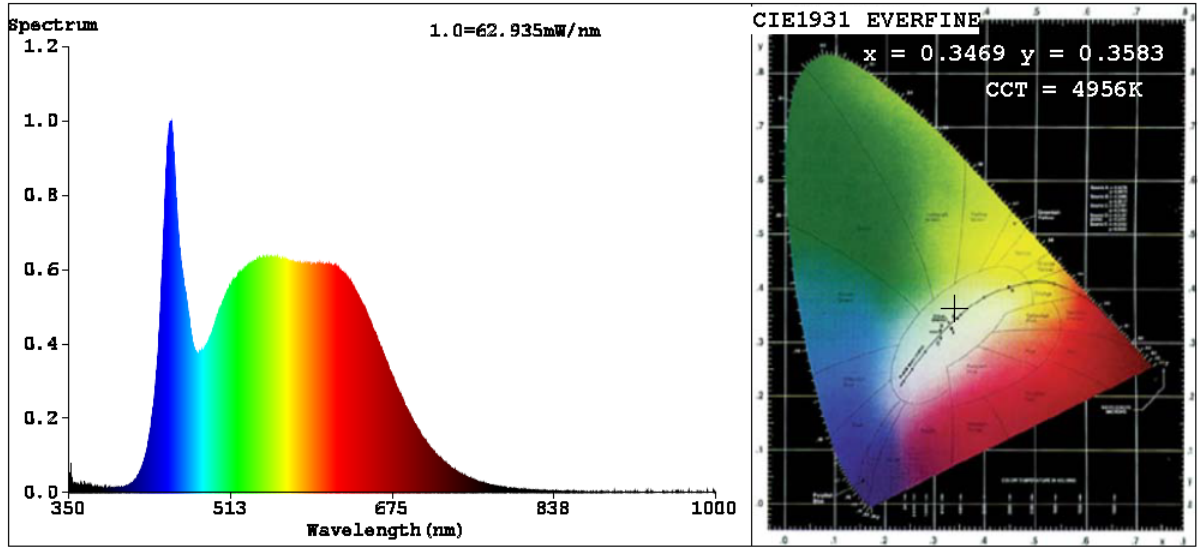
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	92	R9	65
Frequency (Hz)	60	R2	95	R10	87
CCT (K)	4956	R3	96	R11	91
Duv	0.0026	R4	91	R12	67
Chromaticity (x, y)	x=0.3469 y=0.3583	R5	91	R13	93
Chromaticity (u', v')	u'=0.2101 v'=0.4882	R6	91	R14	98
Color Rendering Index (CRI)	92.4	R7	95	R15	90
R9	65	R8	87	--	--
Rg	99				
Rf	92				
Rcs,h1%	-5				

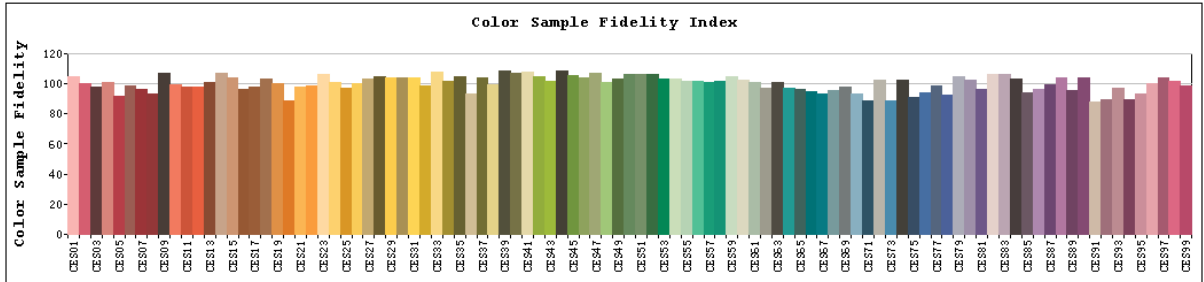
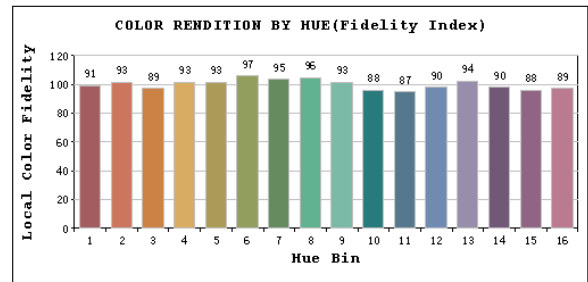
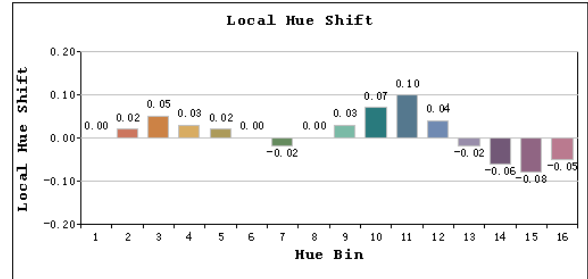
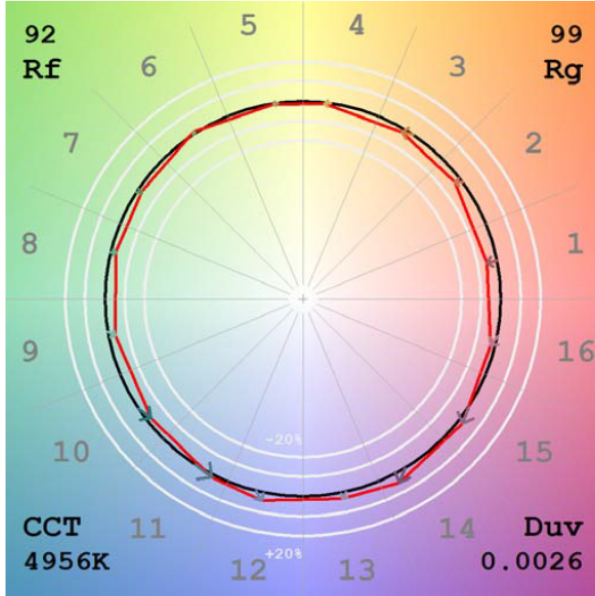
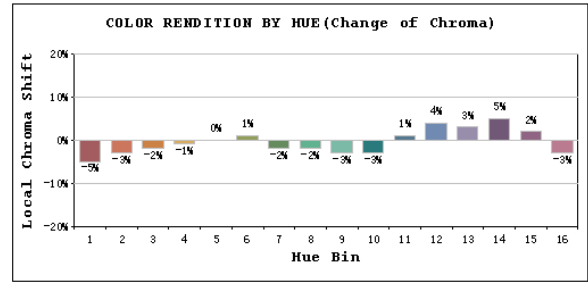
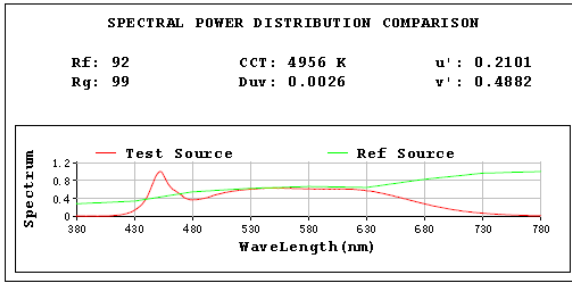
**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2693.2
Luminous Efficacy (lm/W)	82.61

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2687.0
Luminous Efficacy (lm/W)	80.33

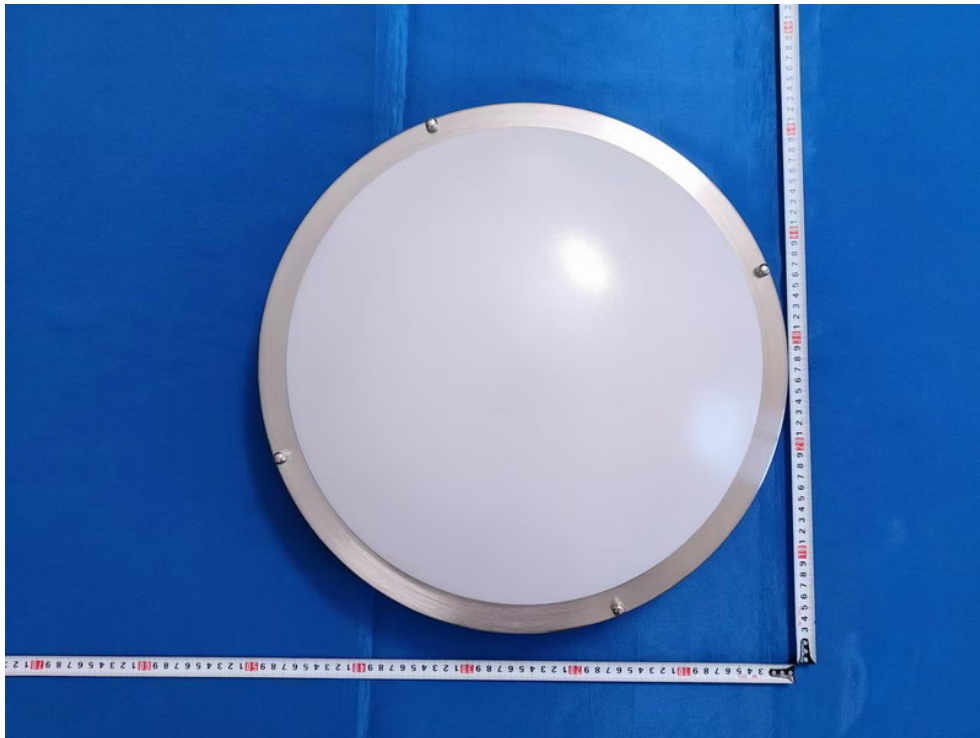
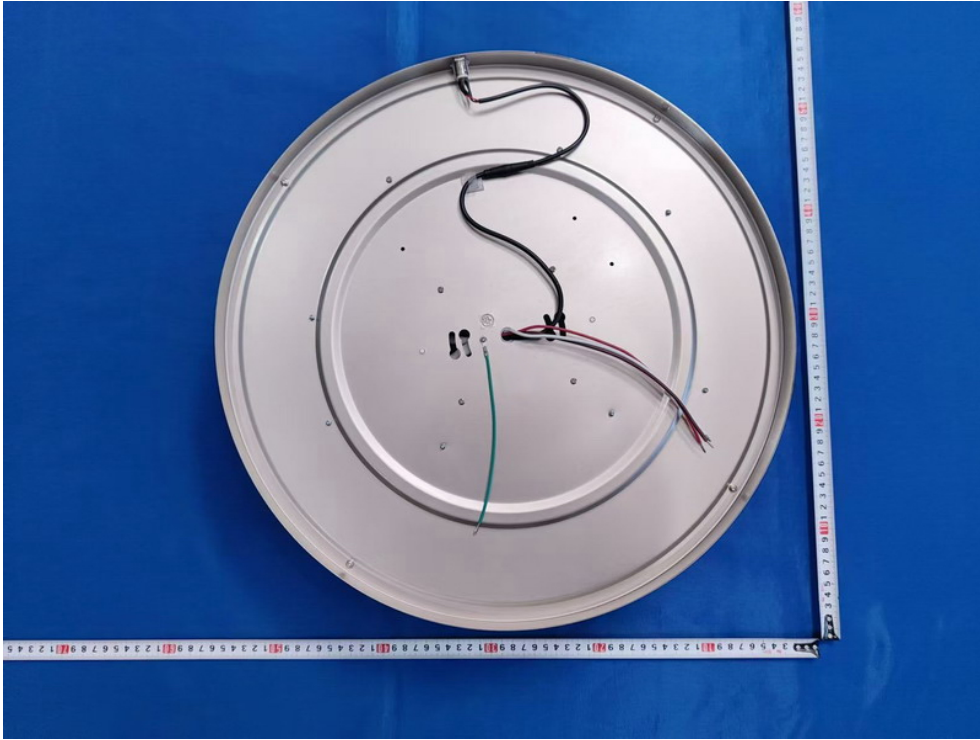
# Spectral Power Distribution & Chromaticity Diagram





Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
CRVFAD-18R/MVS/EM	2700K setting	120	2423.6	32.60	74.34
		277	2421.0	33.43	72.42
	3000K setting	120	2602.1	32.50	80.07
		277	2594.0	32.76	79.18
	3500K setting	120	2779.9	31.70	87.69
		277	2778.0	32.75	84.82
	4000K setting	120	2800.2	32.20	86.96
		277	2793.0	31.82	87.77
	5000K setting	120	2693.2	32.60	82.61
		277	2687.0	33.45	80.33

### 3. Product Photo



\*\*\*\*\* END OF REPORT \*\*\*\*\*