

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):
CRVFAS-19R/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

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

1.3 Test Methods

<p>1) Photometric and Light Distribution Measurement – Goniophotometer Method: 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>2) Chromaticity Measurement – Sphere-Spectroradiometer Method: 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>3) Electrical Measurements: 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

Test date	2024-11-04	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CRVFAS-19R/MVS/EM	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411020025	120.0	60	0.269	32.10	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

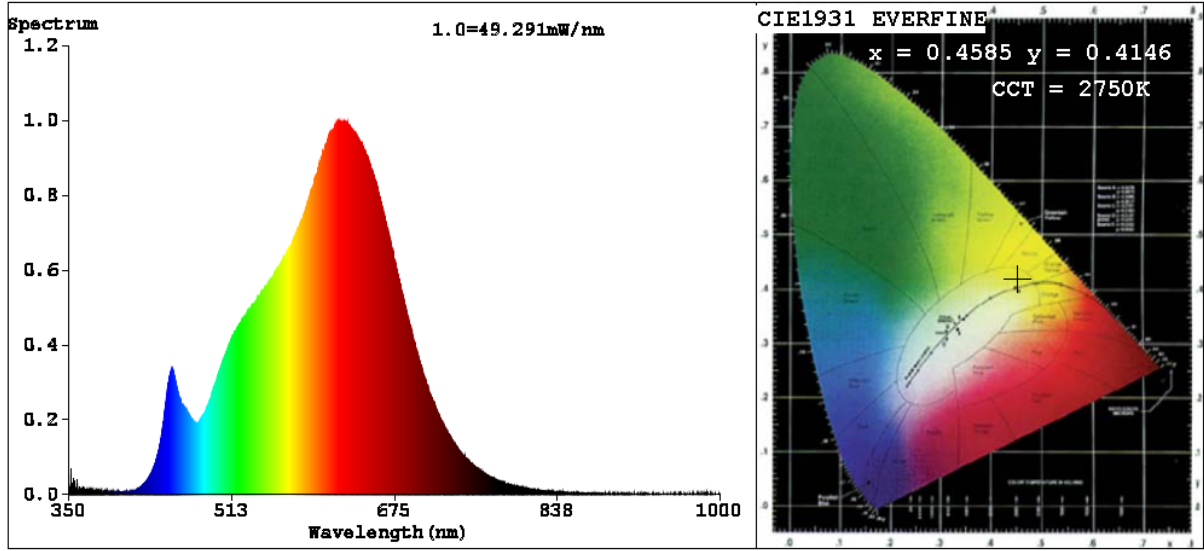
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	67
Frequency (Hz)	60	R2	98	R10	94
CCT (K)	2750	R3	99	R11	98
Duv	0.0016	R4	96	R12	86
Chromaticity (x, y)	x=0.4585 y=0.4146	R5	95	R13	96
Chromaticity (u', v')	u'=0.2598 v'=0.5286	R6	98	R14	98
Color Rendering Index (CRI)	95.0	R7	94	R15	91
R9	67	R8	85	--	--
Rg	98				
Rf	94				
Rcs,h1%	-4				

Photometric Measurement – Goniophotometer Method:

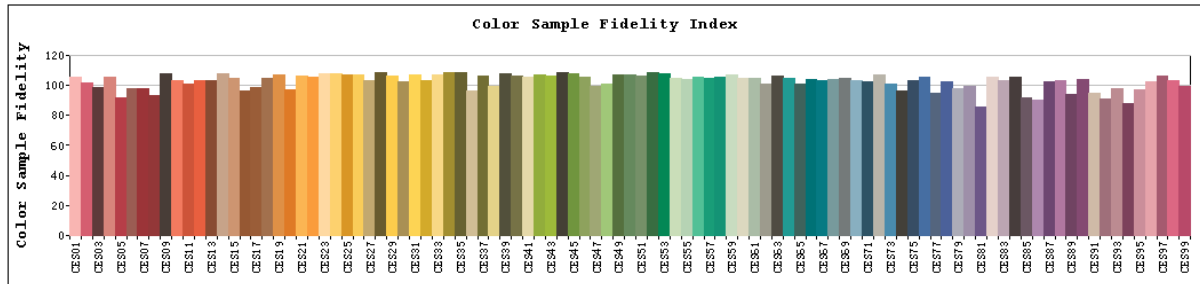
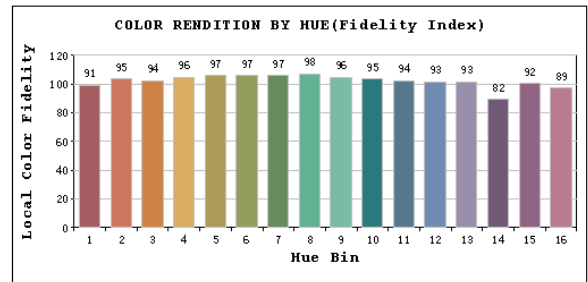
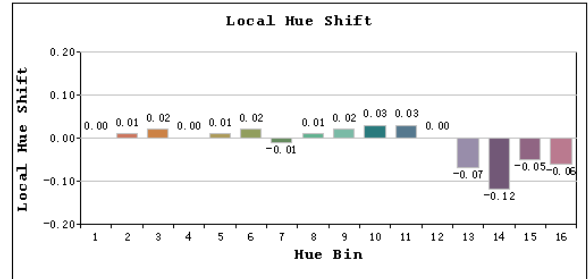
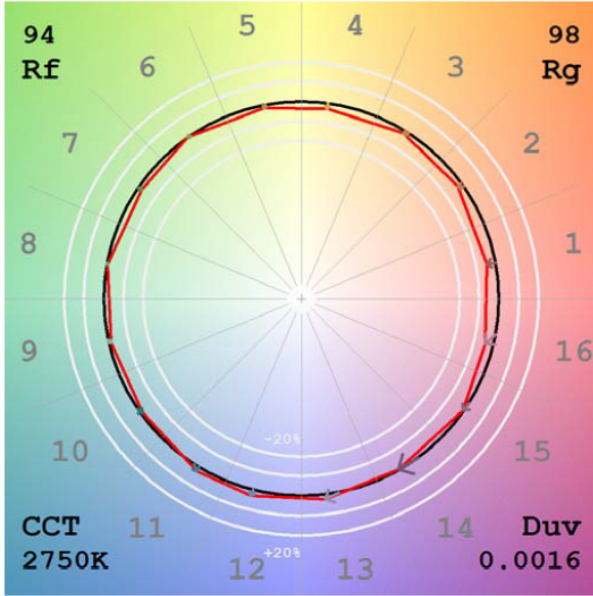
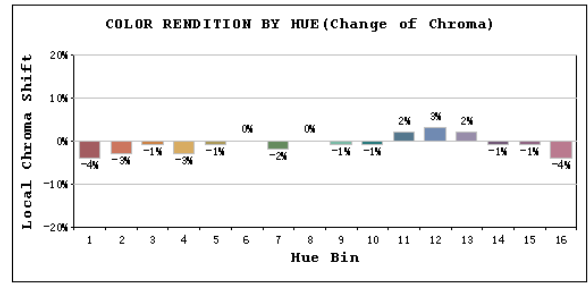
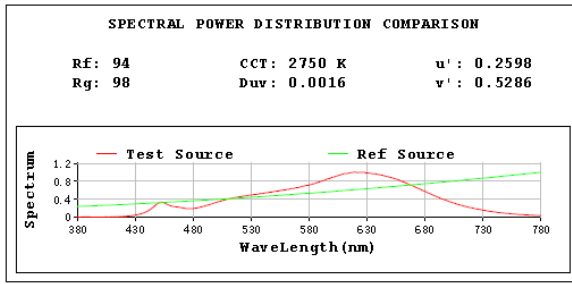
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2269.8
Luminous Efficacy (lm/W)	70.71
Beam Angle (°)	117.0
Center Beam Candle Power (cd)	722.4

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2374.0
Luminous Efficacy (lm/W)	69.52

Spectral Power Distribution & Chromaticity Diagram



TM30



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	566.8	25.0%
0-40	935.3	41.2%
0-60	1683.7	74.2%
60-90	512.0	22.6%
70-100	249.3	11.0%
90-120	44.3	2.0%
0-90	2195.7	96.7%
90-180	74.1	3.3%
0-180	2269.8	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	68.4	3.0%	90-100	17.7	0.8%
10-20	197.0	8.7%	100-110	14.3	0.6%
20-30	301.4	13.3%	110-120	12.3	0.5%
30-40	368.5	16.2%	120-130	10.1	0.4%
40-50	389.2	17.1%	130-140	7.8	0.3%
50-60	359.2	15.8%	140-150	5.6	0.2%
60-70	280.4	12.4%	150-160	3.6	0.2%
70-80	169.6	7.5%	160-170	2.0	0.1%
80-90	62.1	2.7%	170-180	0.7	0.0%

Photometric Data

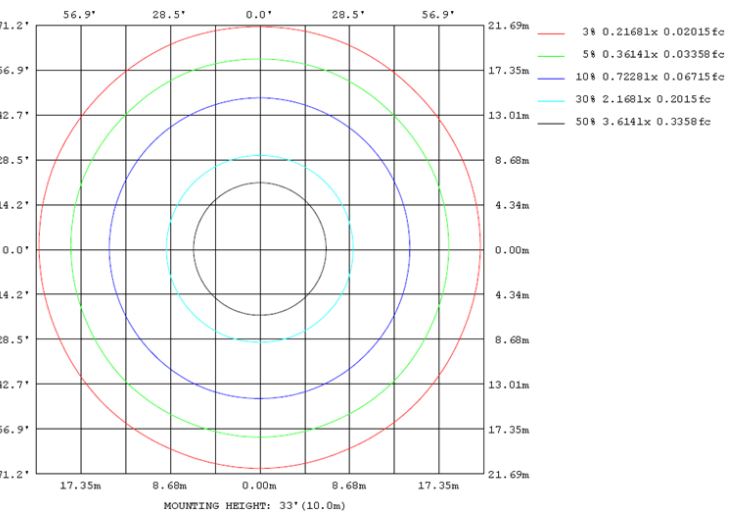
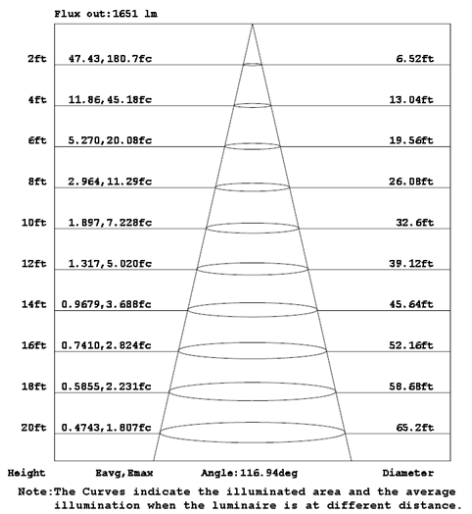
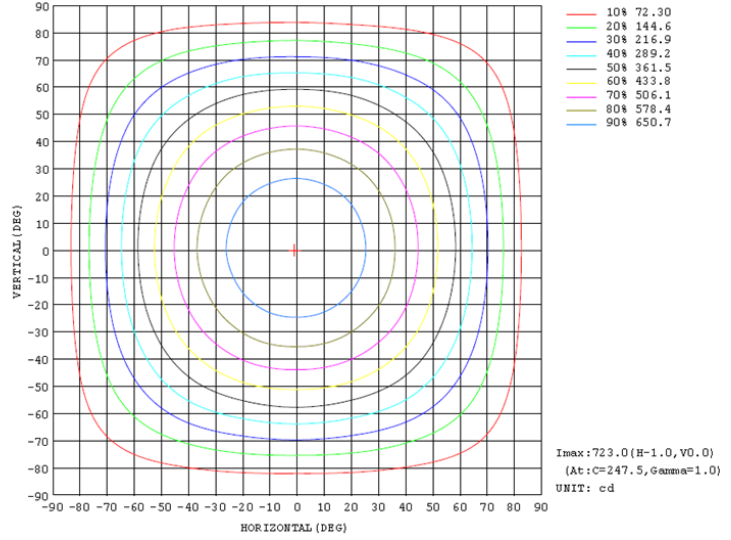
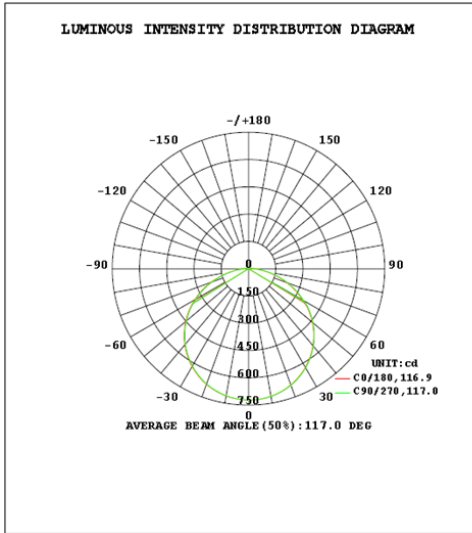


Table--1

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	722	722	722	722	722	722	722	722	722	722	722	722	722	722	722	722			
5	719	718	718	719	718	719	718	720	720	720	720	721	720	720	720	719			
10	710	709	709	710	709	710	711	712	712	713	713	713	713	712	711				
15	696	696	694	695	694	696	696	698	699	699	701	701	701	699	699	698			
20	677	676	674	675	674	676	677	679	680	681	682	683	682	681	680	679			
25	651	650	648	649	648	651	651	653	656	657	659	659	659	657	656	654			
30	621	620	618	619	618	620	621	623	627	628	630	630	630	627	627	624			
35	586	585	582	583	582	585	585	588	592	594	596	596	595	593	592	589			
40	546	545	541	543	541	544	545	548	552	554	557	557	557	554	552	550			
45	501	500	496	497	496	499	500	504	508	510	513	513	513	510	509	505			
50	452	450	447	448	447	450	451	455	460	462	465	465	465	461	460	457			
55	399	397	393	394	393	396	397	402	407	409	413	412	413	409	408	404			
60	342	334	336	331	335	333	340	338	344	352	350	356	350	352	345	347			
65	282	275	276	271	275	273	280	279	285	293	292	297	292	293	286	287			
70	220	214	214	211	213	213	218	218	225	232	232	236	231	231	226	226			
75	155	154	150	151	149	152	153	158	164	167	171	170	170	166	165	161			
80	98.3	97.3	94.0	94.6	92.6	95.5	95.7	100	106	109	113	112	112	108	107	103			
85	50.5	50.0	47.7	48.0	46.8	48.4	48.8	51.9	56.5	58.5	62.1	61.3	61.3	57.4	56.5	53.6			
90	21.5	21.8	21.4	22.0	21.6	22.2	22.5	24.1	26.1	27.1	28.5	27.7	27.1	24.5	23.7	22.5			
95	12.7	13.6	14.6	15.3	15.5	15.5	15.6	16.1	16.6	16.7	16.6	15.7	14.4	12.9	12.3	12.2			
100	12.2	13.1	14.1	14.7	14.9	14.9	14.9	15.3	15.6	15.7	15.4	14.6	13.3	12.1	11.6	11.6			
105	11.9	12.7	13.6	14.3	14.4	14.3	14.3	14.6	14.9	15.0	14.7	14.0	12.8	11.8	11.3	11.3			
110	11.6	12.3	13.2	13.8	13.9	13.7	13.7	13.9	14.1	14.2	14.0	13.3	12.3	11.4	11.0	11.0			
115	11.3	11.9	12.7	13.2	13.3	13.1	13.0	13.2	13.4	13.5	13.3	12.7	11.8	11.0	10.7	10.7			
120	10.9	11.5	12.2	12.6	12.7	12.5	12.3	12.4	12.6	12.7	12.6	12.1	11.3	10.7	10.4	10.4			
125	10.5	11.0	11.6	12.0	12.0	11.9	11.7	11.7	11.8	12.0	11.9	11.4	10.8	10.2	10.0	10.1			
130	10.1	10.6	11.0	11.4	11.4	11.2	11.0	10.9	11.1	11.2	11.1	10.8	10.3	9.84	9.66	9.70			
135	9.65	10.1	10.5	10.7	10.7	10.5	10.3	10.2	10.3	10.4	10.4	10.1	9.71	9.40	9.28	9.33			
140	9.22	9.53	9.85	10.1	10.0	9.81	9.57	9.40	9.48	9.63	9.61	9.42	9.15	8.96	8.89	8.94			
145	8.77	9.01	9.23	9.38	9.32	9.12	8.87	8.67	8.69	8.84	8.87	8.75	8.60	8.52	8.50	8.54			
150	8.33	8.49	8.62	8.73	8.64	8.47	8.24	8.03	7.95	8.08	8.14	8.10	8.09	8.10	8.14	8.17			
155	7.91	8.00	8.06	8.11	8.00	7.85	7.64	7.43	7.29	7.40	7.48	7.56	7.66	7.73	7.77	7.80			
160	7.54	7.56	7.56	7.53	7.45	7.33	7.15	6.96	6.78	6.82	6.93	7.12	7.30	7.40	7.45	7.46			
165	7.20	7.19	7.16	7.10	7.01	6.92	6.80	6.67	6.53	6.50	6.68	6.89	7.03	7.14	7.17	7.18			
170	6.96	6.93	6.90	6.83	6.77	6.70	6.67	6.63	6.58	6.62	6.69	6.78	6.86	6.93	6.95	6.98			
175	6.92	6.89	6.85	6.83	6.82	6.79	6.74	6.72	6.70	6.74	6.77	6.80	6.84	6.87	6.90	6.95			
180	6.94	6.95	6.96	6.95	6.97	6.97	6.96	7.00	6.93	6.94	6.97	6.97	6.96	6.97	6.96	6.98			

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	CRVFAS-19R/MVS/EM	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411020025	120.0	60	0.268	32.00	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

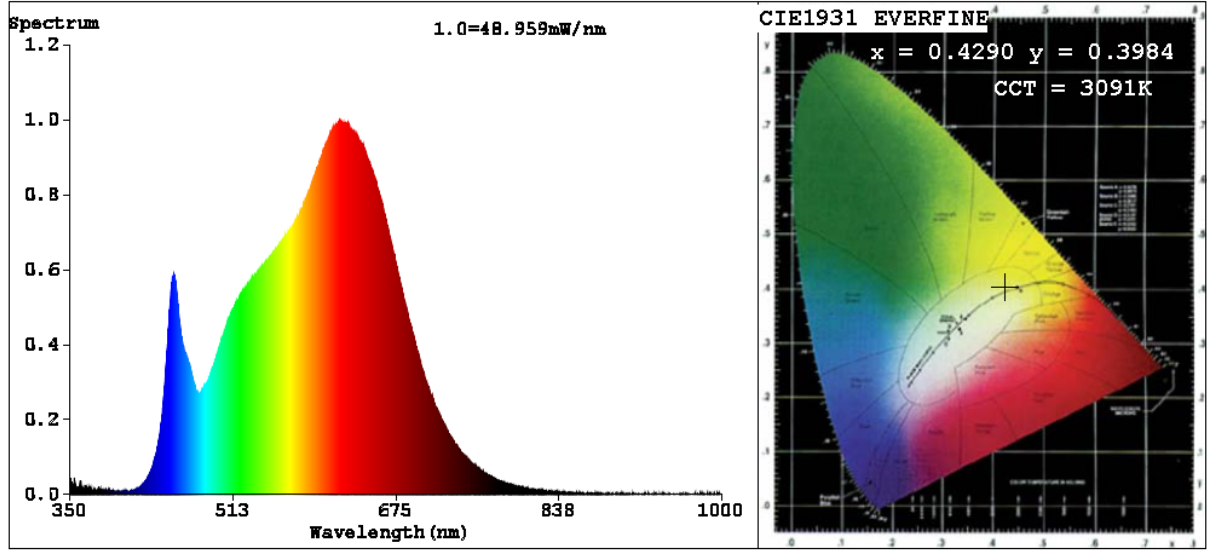
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	76
Frequency (Hz)	60	R2	99	R10	97
CCT (K)	3091	R3	99	R11	98
Duv	-0.0011	R4	97	R12	84
Chromaticity (x, y)	x=0.4290 y=0.3984	R5	97	R13	99
Chromaticity (u', v')	u'=0.2479 v'=0.5179	R6	97	R14	99
Color Rendering Index (CRI)	96.3	R7	94	R15	95
R9	76	R8	89	--	--
Rg	100				
Rf	94				
Rcs,h1%	-3				

Photometric Measurement – Goniophotometer Method:

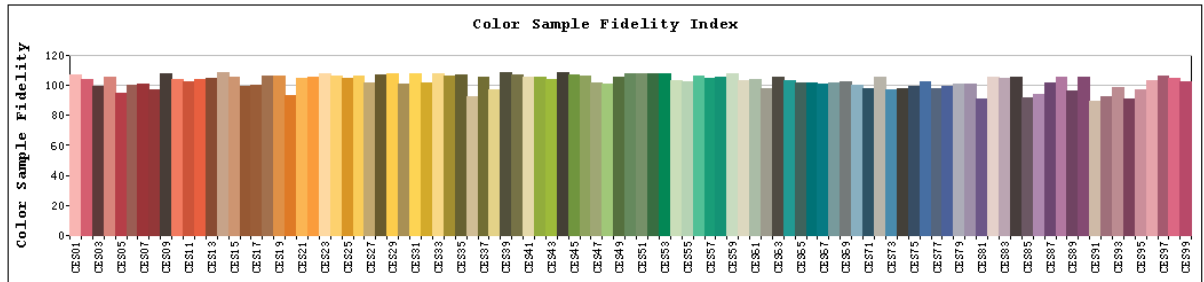
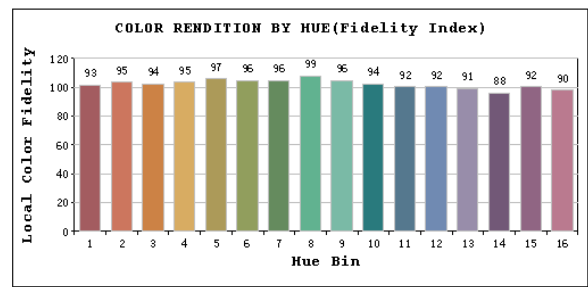
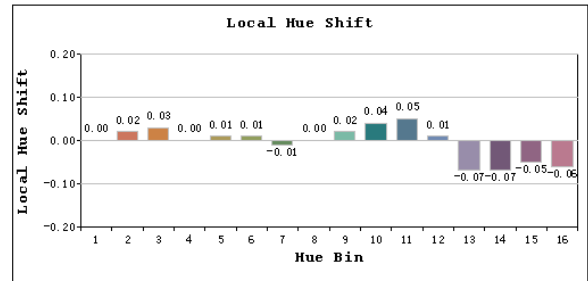
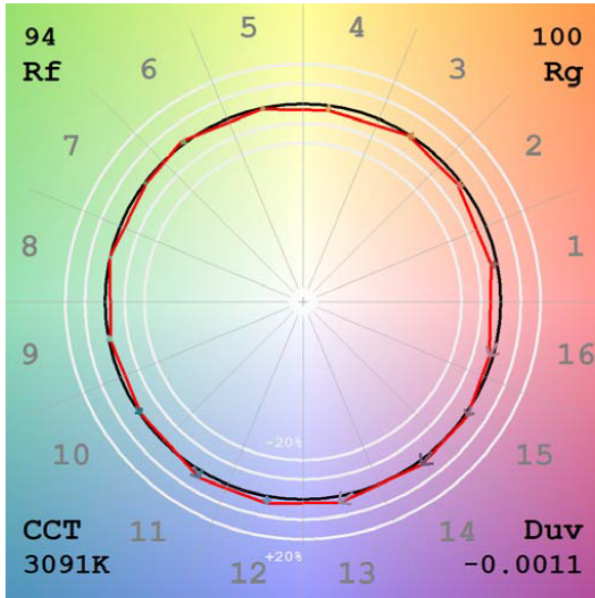
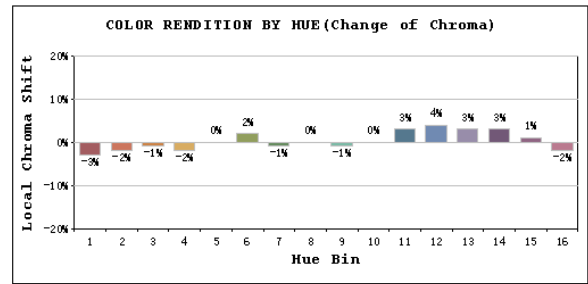
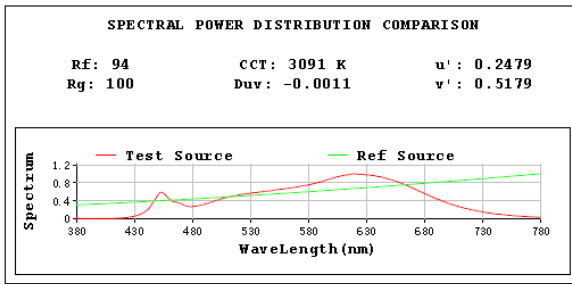
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2436.7
Luminous Efficacy (lm/W)	76.15

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2557.0
Luminous Efficacy (lm/W)	75.10

Spectral Power Distribution & Chromaticity Diagram



TM30



2.1.3 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	CRVFAS-19R/MVS/EM	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411020025	120.0	60	0.262	31.20	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

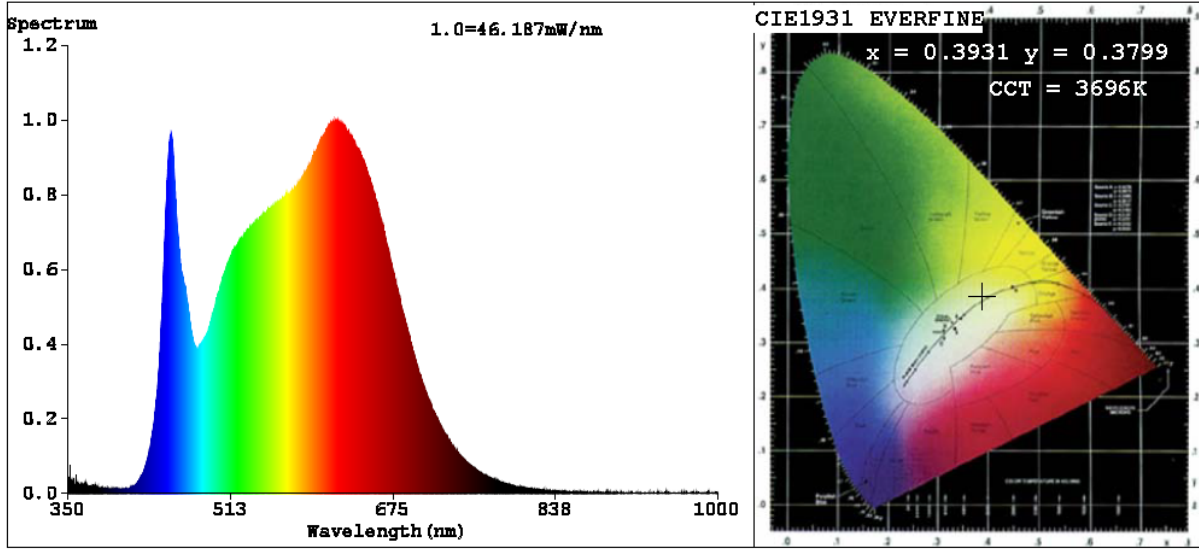
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	82
Frequency (Hz)	60	R2	99	R10	97
CCT (K)	3696	R3	98	R11	98
Duv	-0.0020	R4	97	R12	79
Chromaticity (x, y)	x=0.3931 y=0.3799	R5	97	R13	99
Chromaticity (u', v')	u'=0.2322 v'=0.5048	R6	96	R14	98
Color Rendering Index (CRI)	96.7	R7	96	R15	97
R9	82	R8	92	--	--
Rg	101				
Rf	94				
Rcs,h1%	-3				

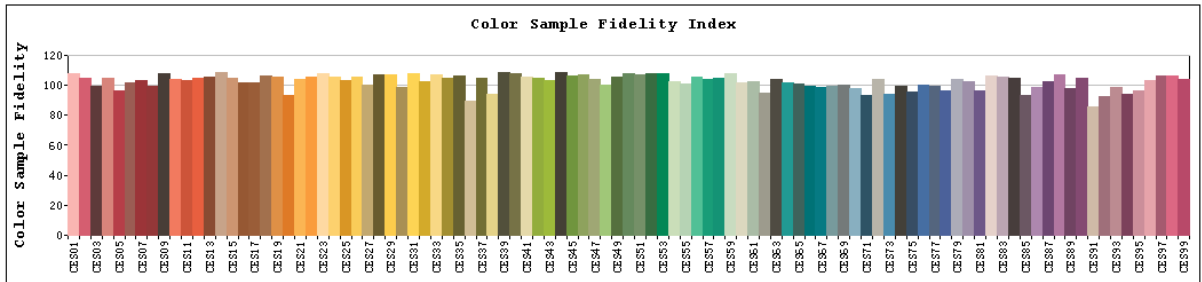
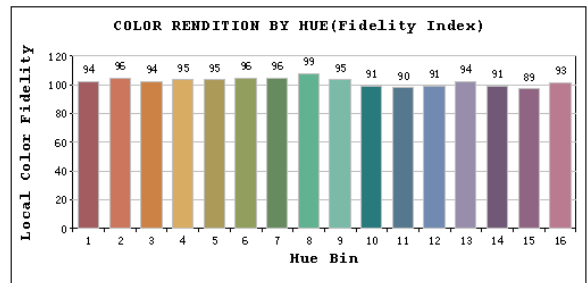
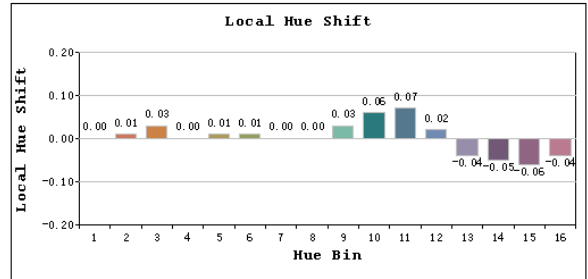
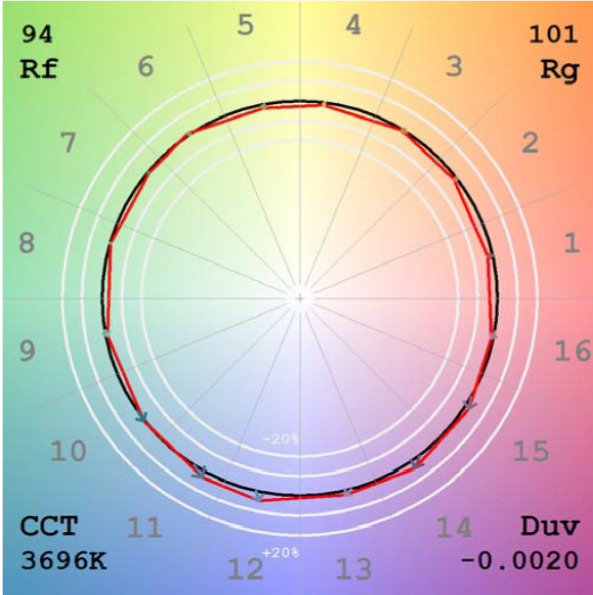
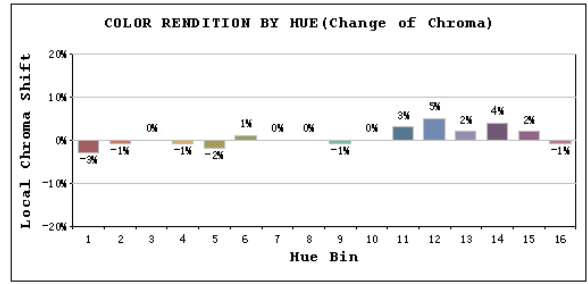
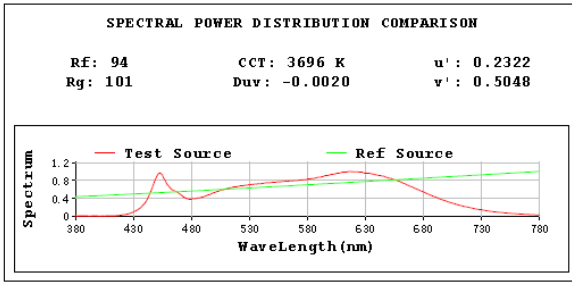
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2599.9
Luminous Efficacy (lm/W)	83.33

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2744.0
Luminous Efficacy (lm/W)	82.40

Spectral Power Distribution & Chromaticity Diagram





2.1.4 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	CRVFAS-19R/MVS/EM	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411020025	120.0	60	0.266	31.80	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

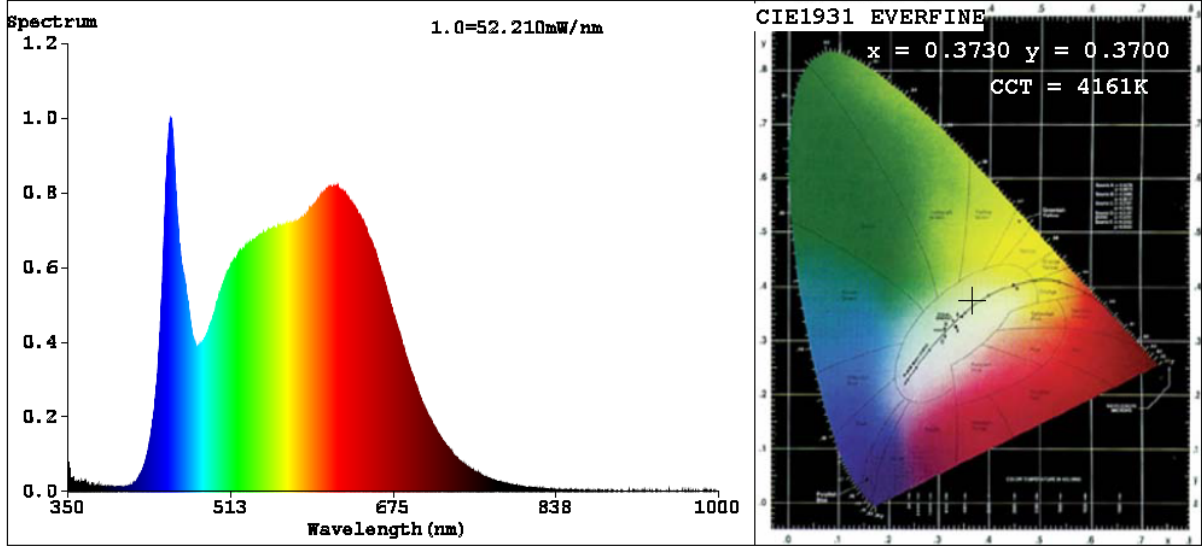
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	81
Frequency (Hz)	60	R2	99	R10	95
CCT (K)	4161	R3	97	R11	97
Duv	-0.0010	R4	96	R12	75
Chromaticity (x, y)	x=0.3730 y=0.3700	R5	96	R13	98
Chromaticity (u', v')	u'=0.2229 v'=0.4975	R6	95	R14	98
Color Rendering Index (CRI)	96.1	R7	96	R15	96
R9	81	R8	92	--	--
Rg	100				
Rf	93				
Rcs,h1%	-3				

Photometric Measurement – Goniophotometer Method:

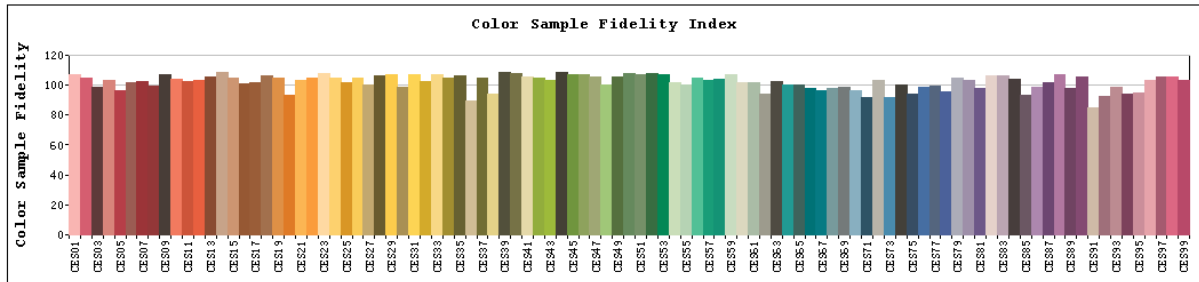
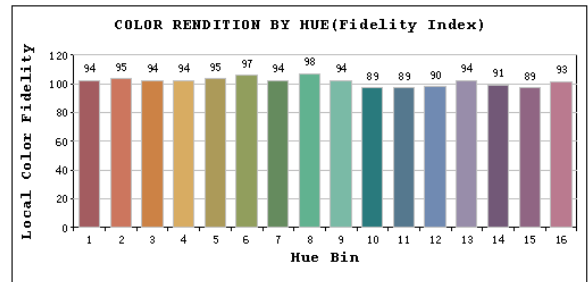
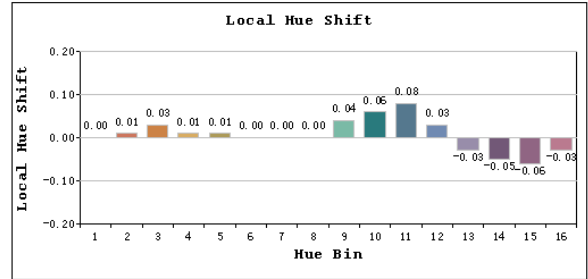
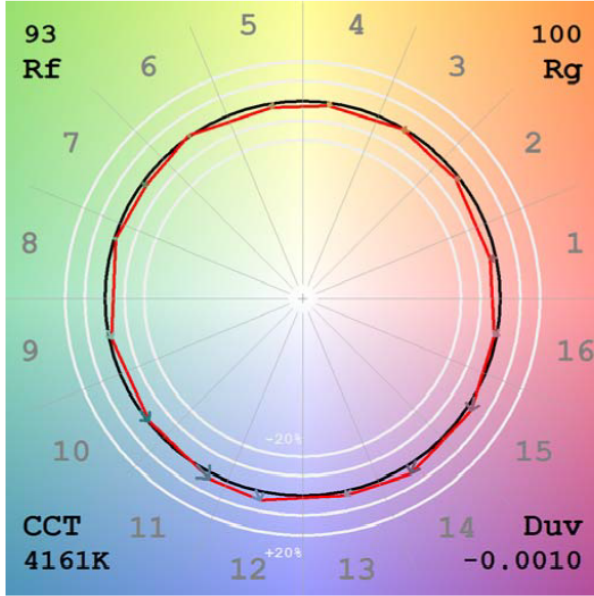
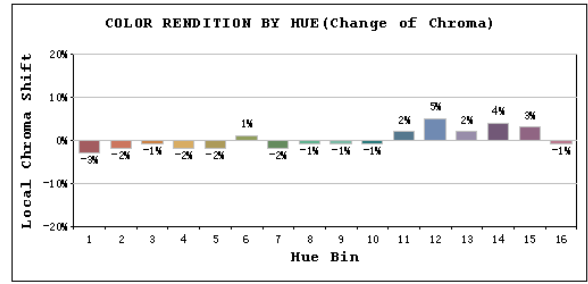
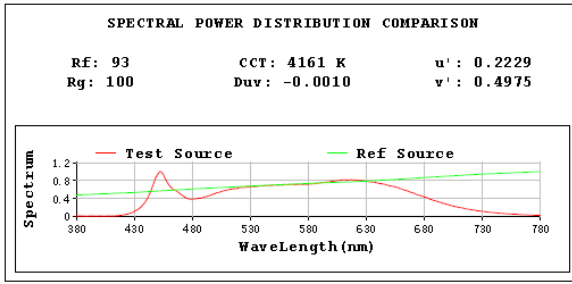
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2620.6
Luminous Efficacy (lm/W)	82.41

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2755.0
Luminous Efficacy (lm/W)	81.46

Spectral Power Distribution & Chromaticity Diagram



TM30



2.1.5 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	CRVFAS-19R/MVS/EM	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411020025	120.0	60	0.269	32.10	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

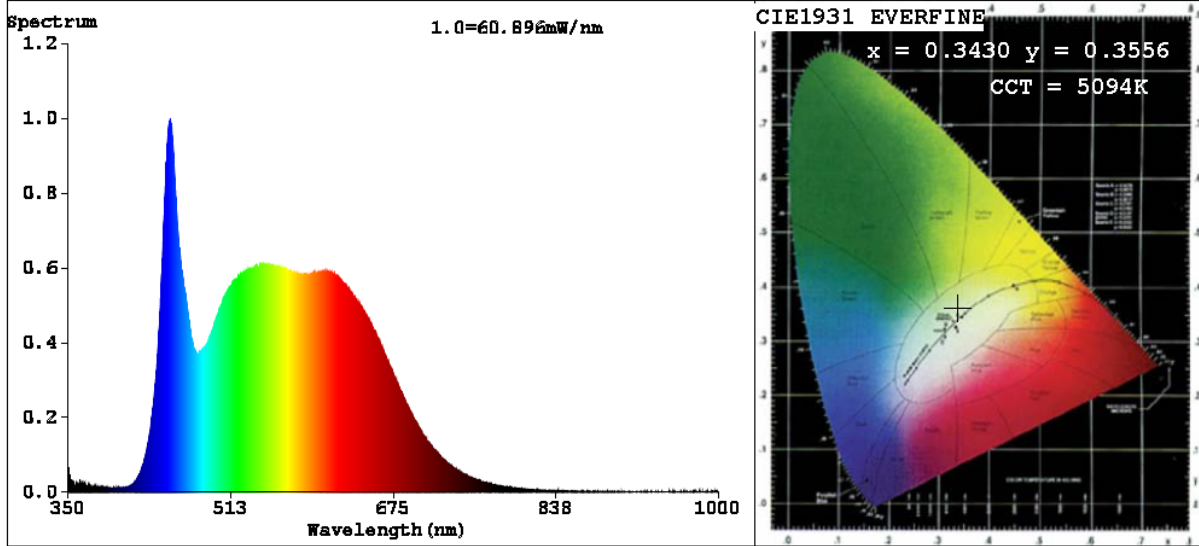
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	94	R9	68
Frequency (Hz)	60	R2	96	R10	88
CCT (K)	5094	R3	96	R11	94
Duv	0.0028	R4	94	R12	74
Chromaticity (x, y)	x=0.3430 y=0.3556	R5	93	R13	94
Chromaticity (u', v')	u'=0.2085 v'=0.4863	R6	93	R14	98
Color Rendering Index (CRI)	93.5	R7	95	R15	92
R9	68	R8	88	--	--
Rg	99				
Rf	92				
Rcs,h1%	-5				

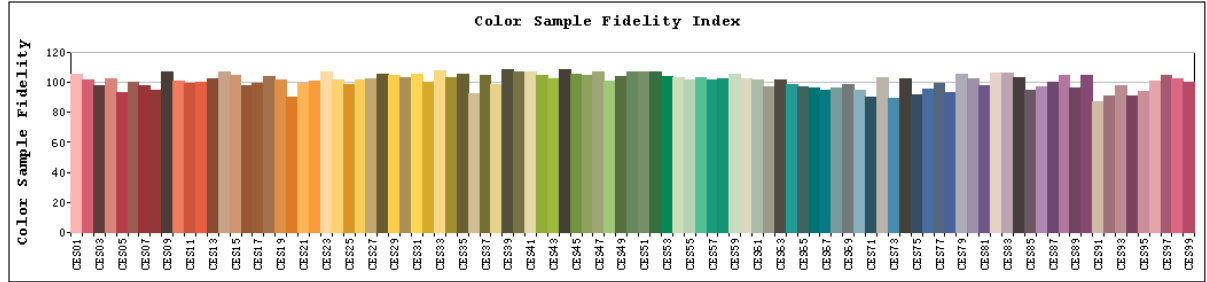
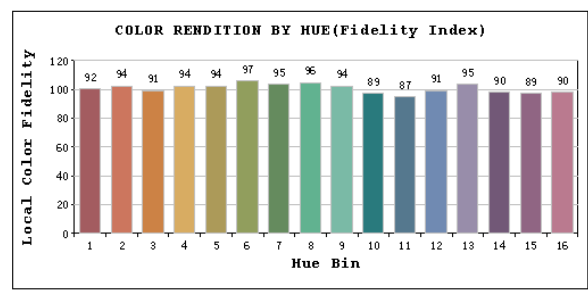
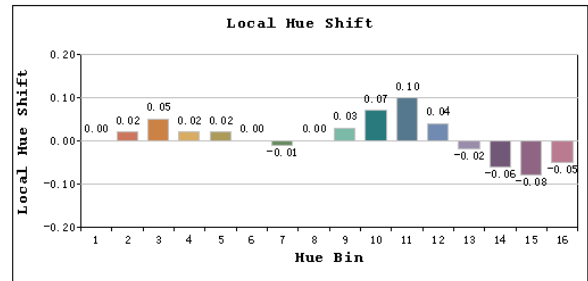
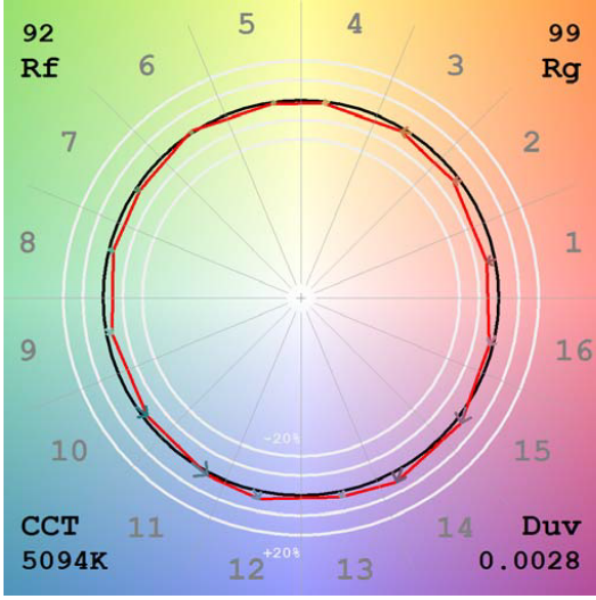
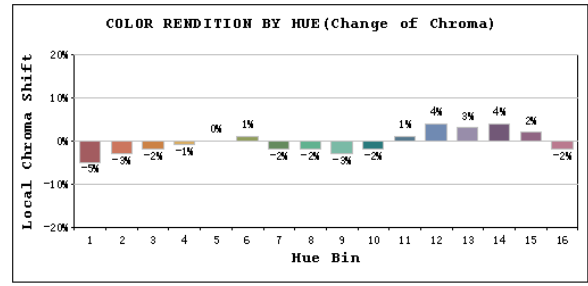
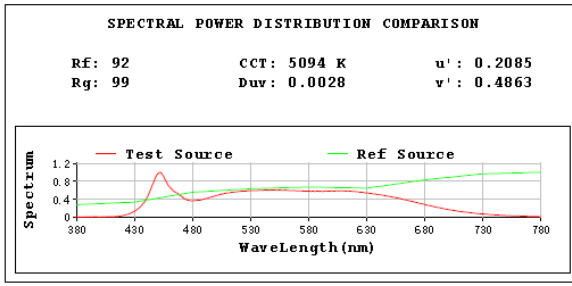
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2523.2
Luminous Efficacy (lm/W)	78.60

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2629.0
Luminous Efficacy (lm/W)	77.30

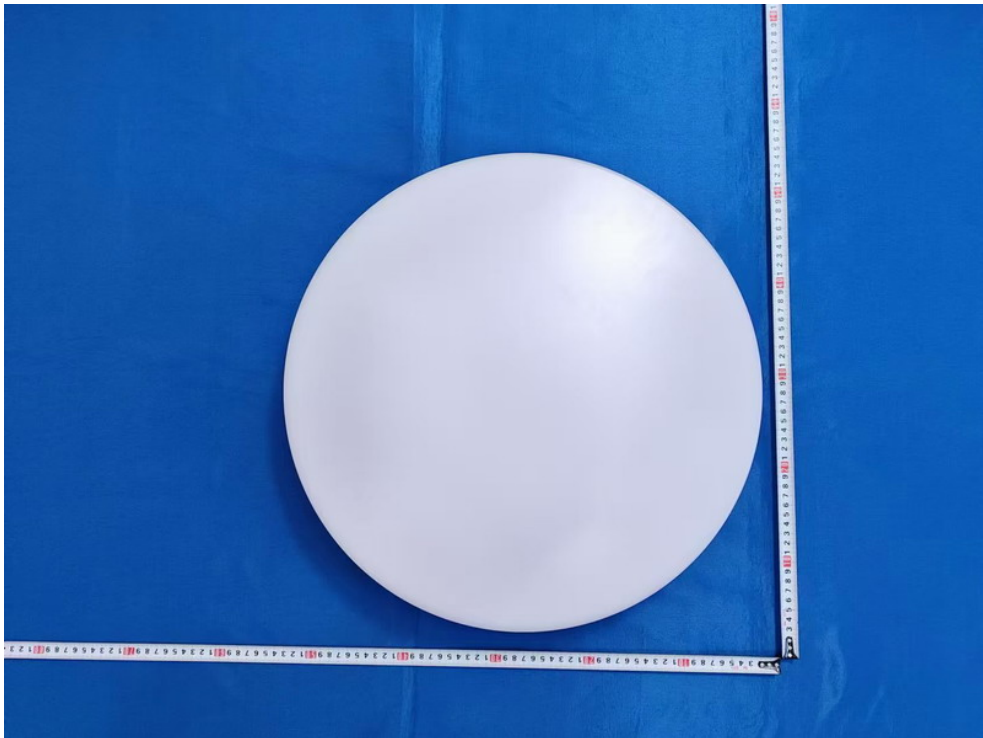
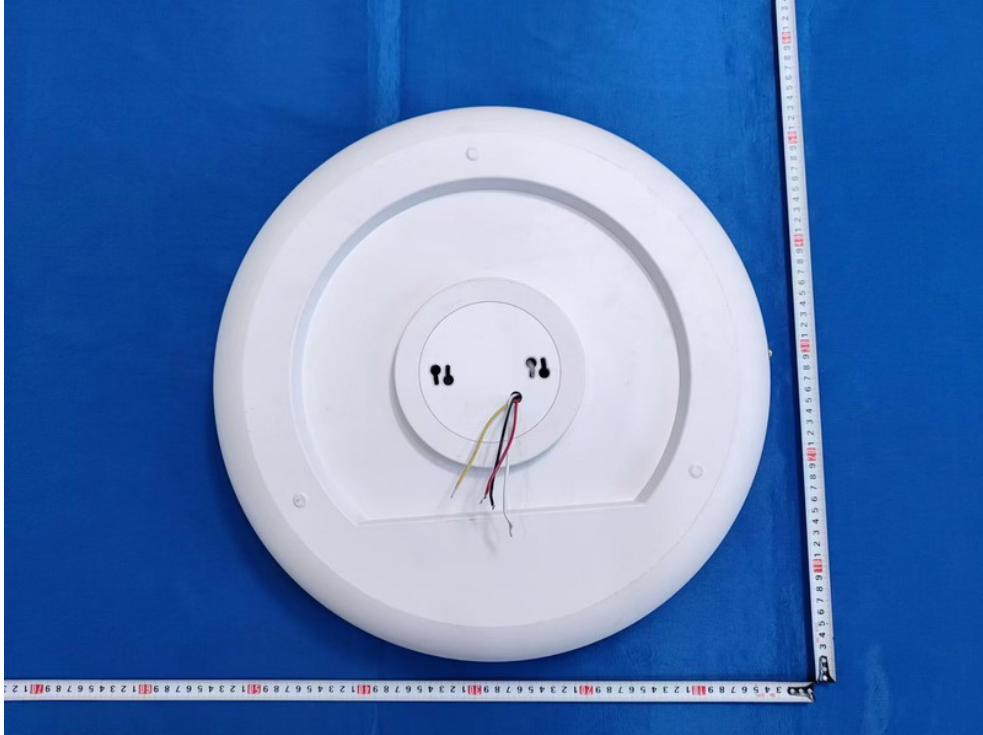
Spectral Power Distribution & Chromaticity Diagram





Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
CRVFAS-19R/MVS/EM	2700K setting	120	2269.8	32.10	70.71
		277	2374.0	34.15	69.52
	3000K setting	120	2436.7	32.00	76.15
		277	2557.0	34.05	75.10
	3500K setting	120	2599.9	31.20	83.33
		277	2744.0	33.30	82.40
	4000K setting	120	2620.6	31.80	82.41
		277	2755.0	33.82	81.46
	5000K setting	120	2523.2	32.10	78.60
		277	2629.0	34.01	77.30

3. Product Photo



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