

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): CRX6

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

**Type of
Luminaire:** Downlights

Report Date: 2024-07-12

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	50.0W/40.0W/30.0 W
Rated Initial Lamp Lumen	5000lm/4000lm/3000lm (mode2700K)
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	2024-07-10	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CRX6	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020006	120.0	60	0.415	49.60	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

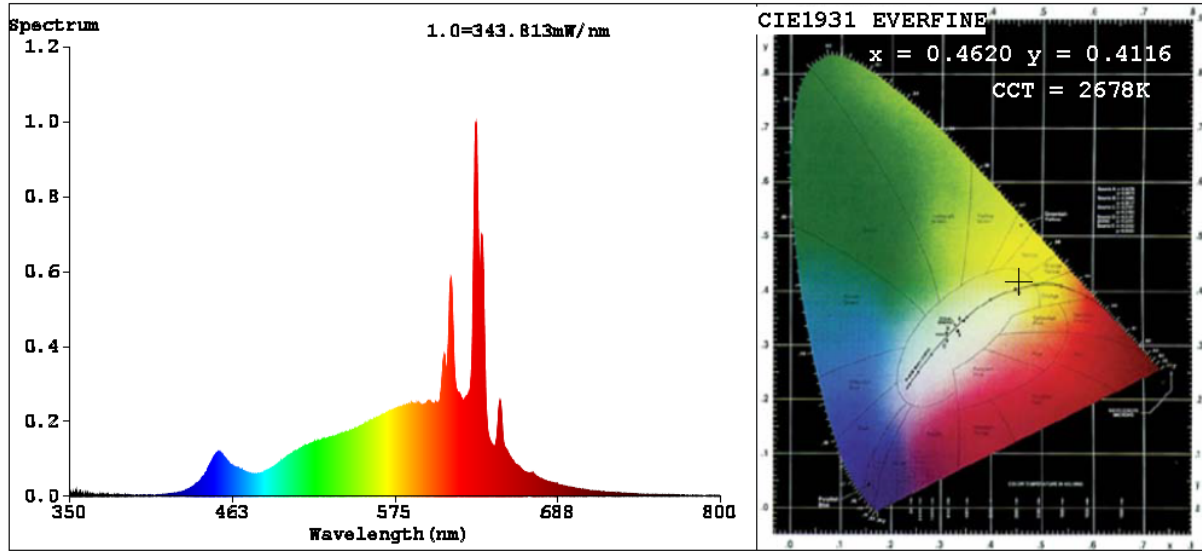
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	61
Frequency (Hz)	60	R2	98	R10	94
CCT (K)	2678	R3	98	R11	98
Duv	0.0002	R4	97	R12	88
Chromaticity (x, y)	x=0.4620 y=0.4116	R5	96	R13	97
Chromaticity (u', v')	u'=0.2634 v'=0.5280	R6	96	R14	97
Color Rendering Index (CRI)	94.6	R7	91	R15	91
R9	61	R8	83	--	--
Rg	99				
Rf	92				
Rcs,h1%	-6				

Photometric Measurement – Goniophotometer Method:

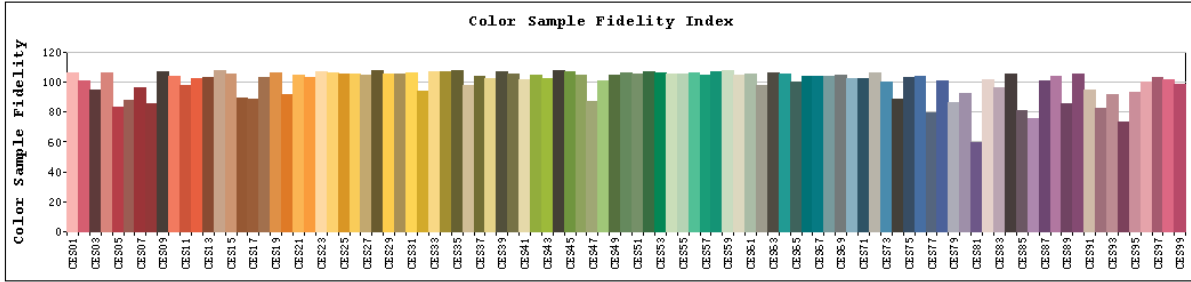
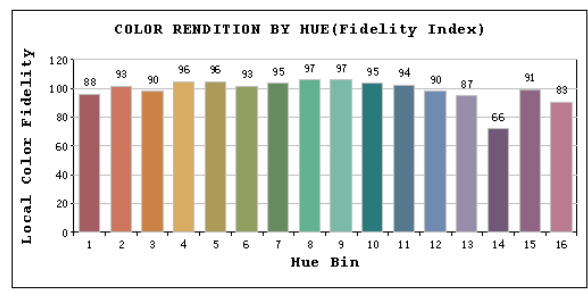
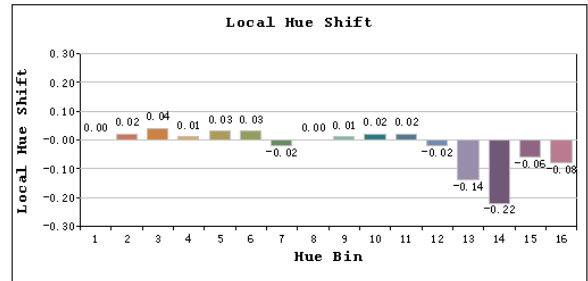
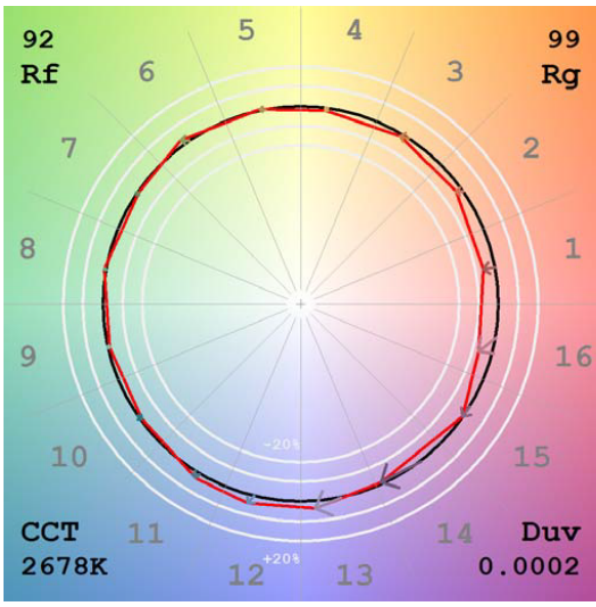
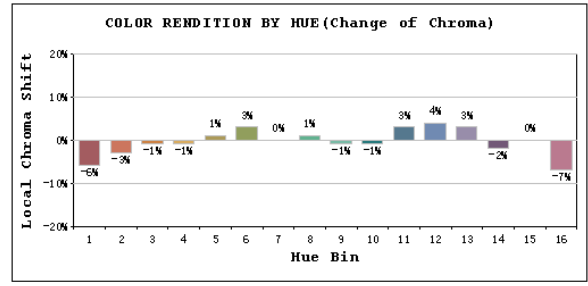
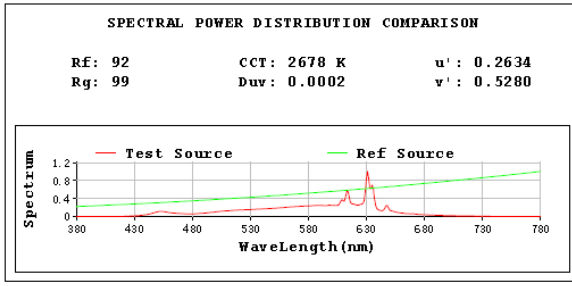
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	5030.3
Luminous Efficacy (lm/W)	101.42
Beam Angle (°)	85.3
Center Beam Candle Power (cd)	2745.0

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	4961.0
Luminous Efficacy (lm/W)	103.05

Spectral Power Distribution & Chromaticity Diagram



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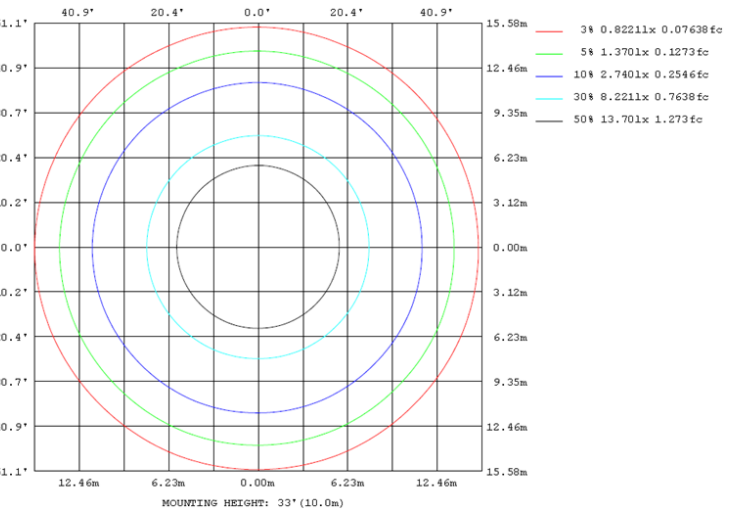
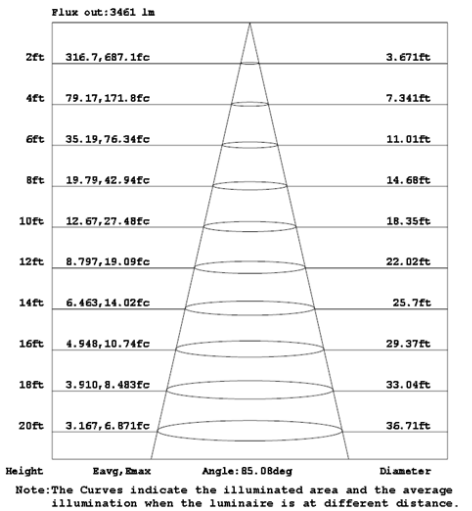
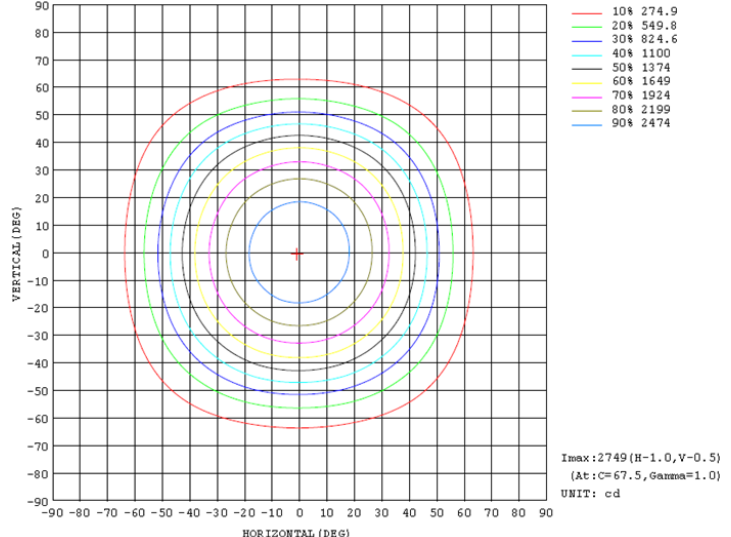
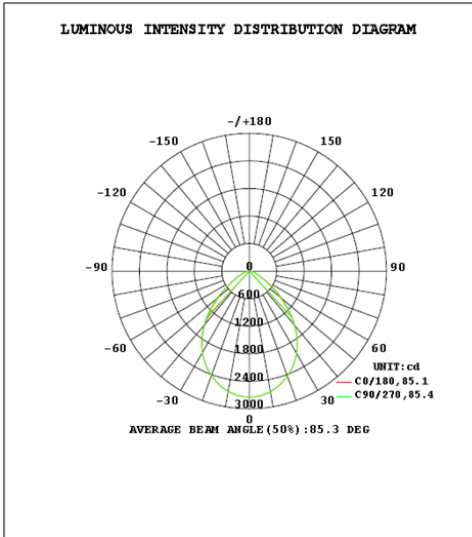


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	2017.2	40.1%
0-40	3146.5	62.5%
0-60	4636.6	92.2%
60-90	393.7	7.8%
70-100	147.2	2.9%
90-120	0.0	0.0%
0-90	5030.3	100.0%
90-180	0.0	0.0%
0-180	5030.3	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	258.0	5.1%	90-100	0.0	0.0%
10-20	720.7	14.3%	100-110	0.0	0.0%
20-30	1038.5	20.6%	110-120	0.0	0.0%
30-40	1129.2	22.4%	120-130	0.0	0.0%
40-50	937.2	18.6%	130-140	0.0	0.0%
50-60	552.9	11.0%	140-150	0.0	0.0%
60-70	246.6	4.9%	150-160	0.0	0.0%
70-80	115.3	2.3%	160-170	0.0	0.0%
80-90	31.8	0.6%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-10	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CRX6	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020006	120.0	60	0.414	49.50	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

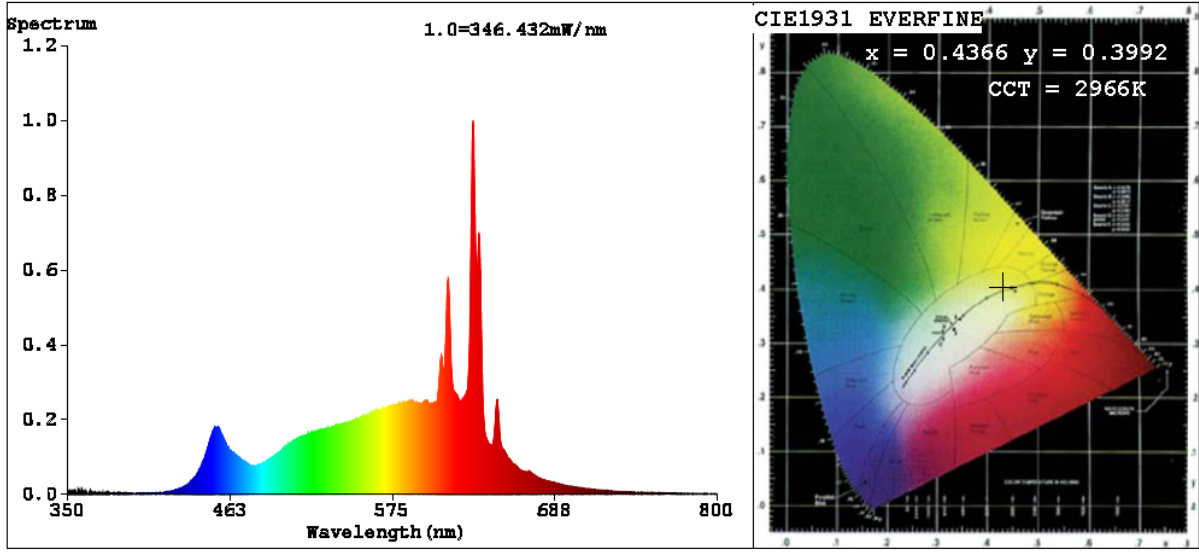
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	99	R9	73
Frequency (Hz)	60	R2	99	R10	97
CCT (K)	2966	R3	98	R11	97
Duv	-0.0019	R4	98	R12	86
Chromaticity (x, y)	x=0.4366 y=0.3992	R5	99	R13	99
Chromaticity (u', v')	u'=0.2525 v'=0.5194	R6	95	R14	97
Color Rendering Index (CRI)	96.2	R7	93	R15	95
R9	73	R8	88	--	--
Rg	101				
Rf	92				
Rcs,h1%	-4				

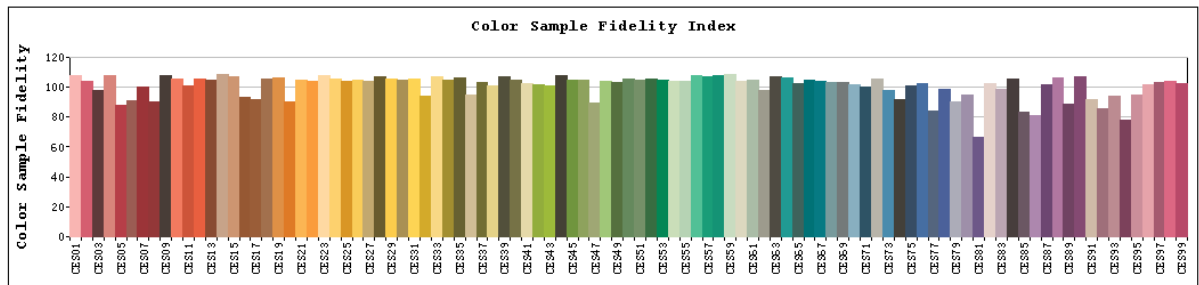
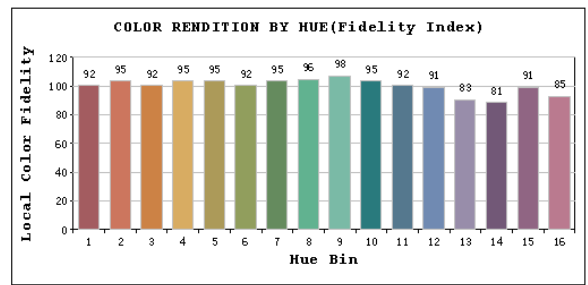
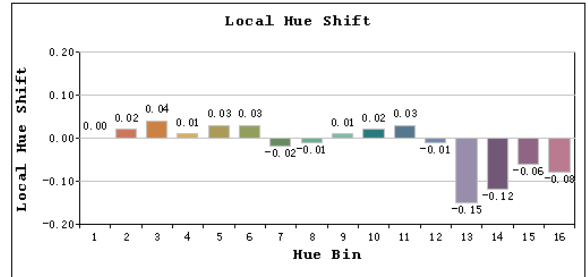
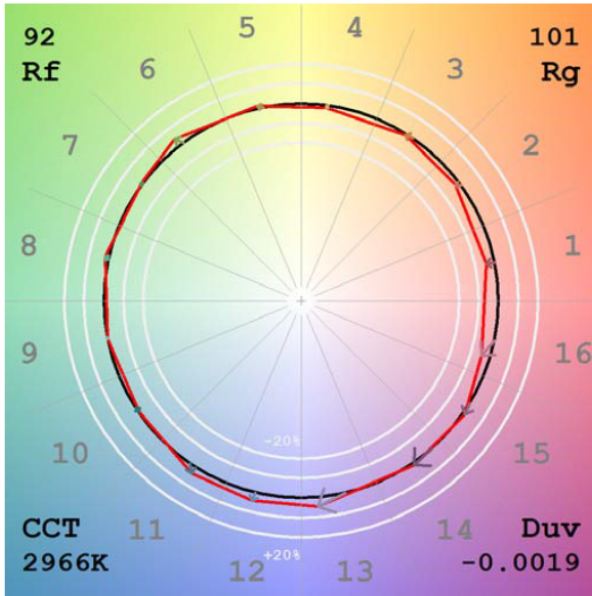
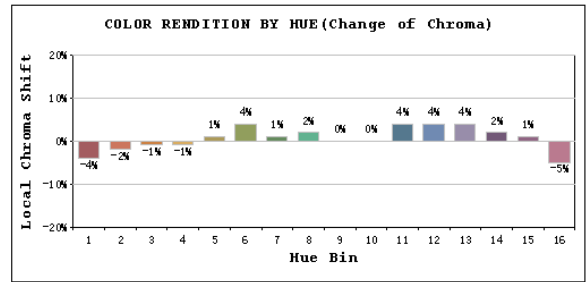
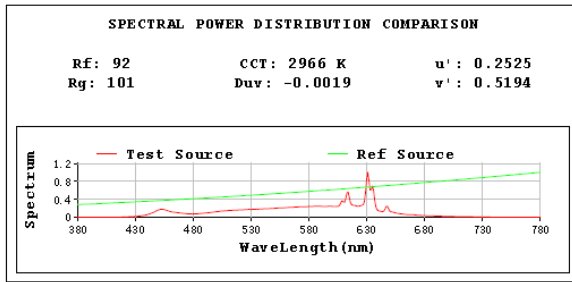
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	5341.8
Luminous Efficacy (lm/W)	107.92

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	5257.0
Luminous Efficacy (lm/W)	109.23

Spectral Power Distribution & Chromaticity Diagram





2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-10	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CRX6	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020006	120.0	60	0.405	48.40	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

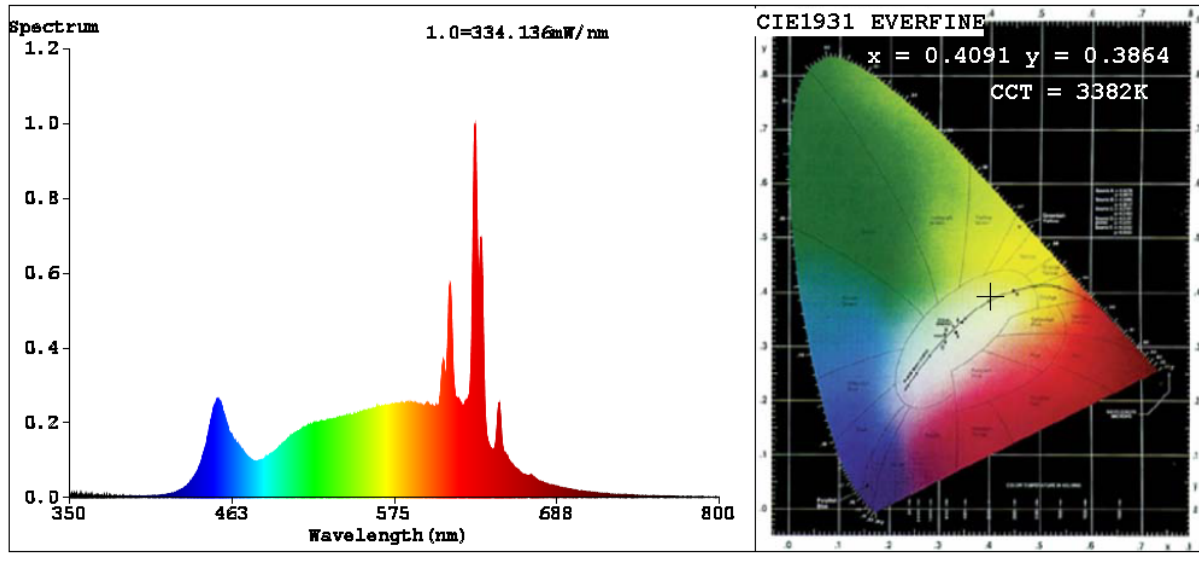
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	84
Frequency (Hz)	60	R2	99	R10	98
CCT (K)	3382	R3	97	R11	95
Duv	-0.0027	R4	98	R12	83
Chromaticity (x, y)	x=0.4091 y=0.3864	R5	99	R13	99
Chromaticity (u', v')	u'=0.2400 v'=0.5100	R6	95	R14	97
Color Rendering Index (CRI)	96.9	R7	95	R15	98
R9	84	R8	93	--	--
Rg	102				
Rf	93				
Rcs,h1%	-3				

Photometric Measurement – Goniophotometer Method:

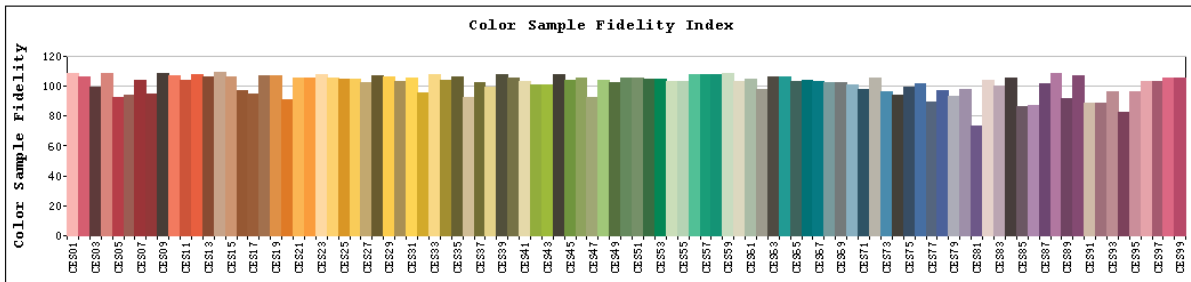
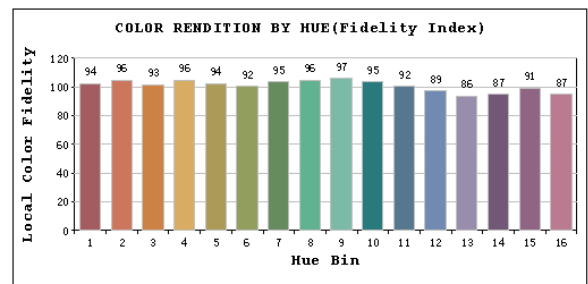
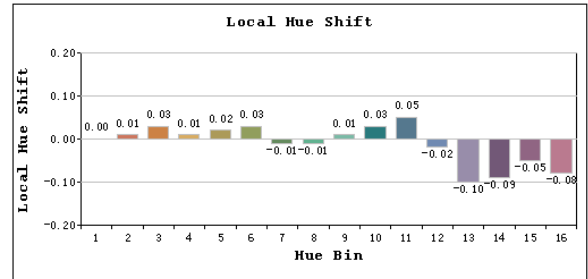
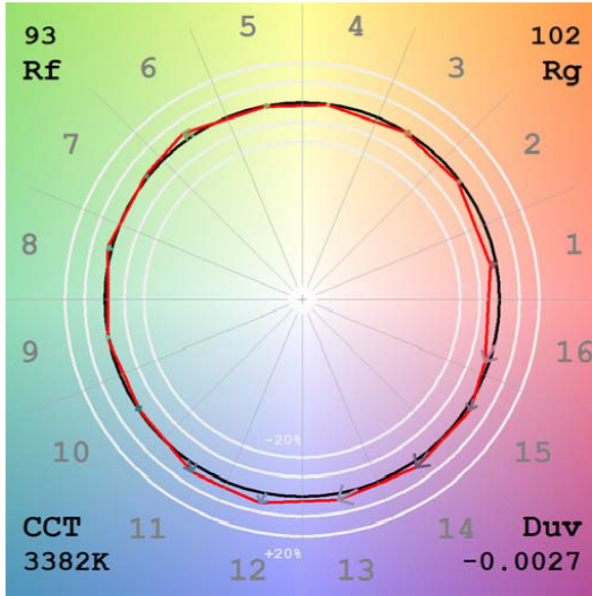
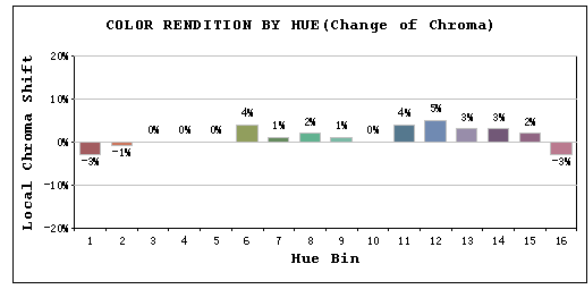
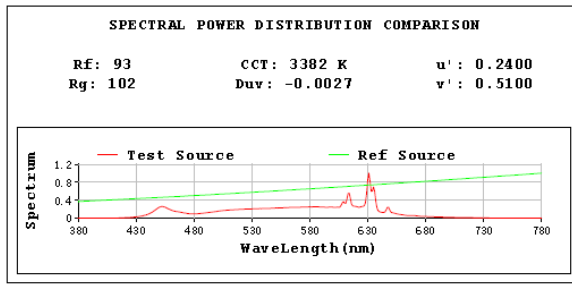
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	5615.6
Luminous Efficacy (lm/W)	116.02

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	5550.0
Luminous Efficacy (lm/W)	117.81

Spectral Power Distribution & Chromaticity Diagram



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2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-10	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CRX6	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020006	120.0	60	0.408	48.80	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

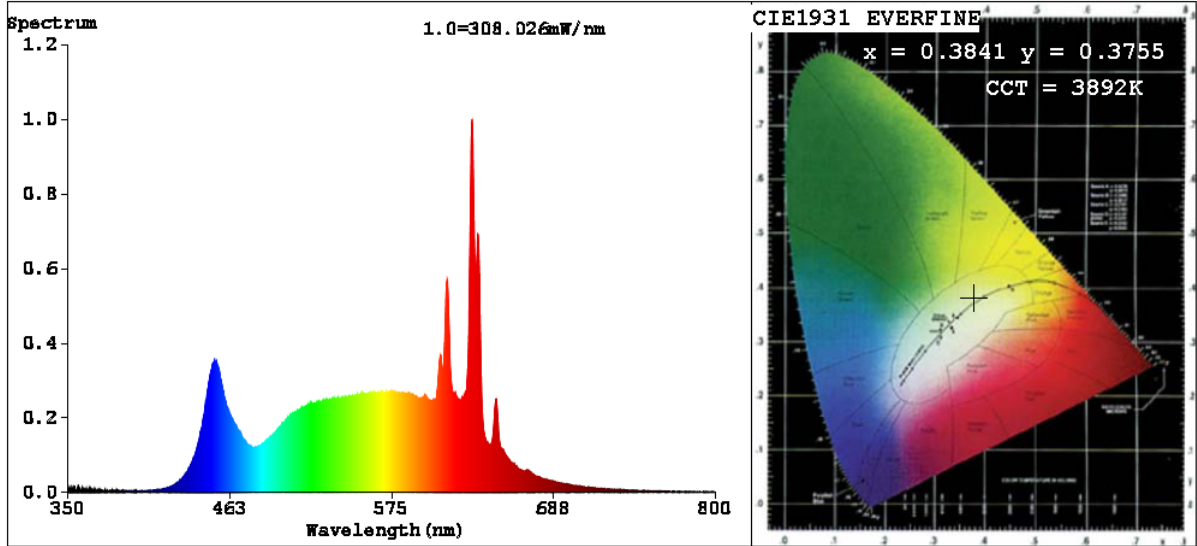
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	89
Frequency (Hz)	60	R2	99	R10	95
CCT (K)	3892	R3	95	R11	95
Duv	-0.0016	R4	98	R12	78
Chromaticity (x, y)	x=0.3841 y=0.3755	R5	99	R13	99
Chromaticity (u', v')	u'=0.2280 v'=0.5016	R6	96	R14	96
Color Rendering Index (CRI)	97.4	R7	97	R15	98
R9	89	R8	96	--	--
Rg	102				
Rf	93				
Rcs,h1%	-3				

Photometric Measurement – Goniophotometer Method:

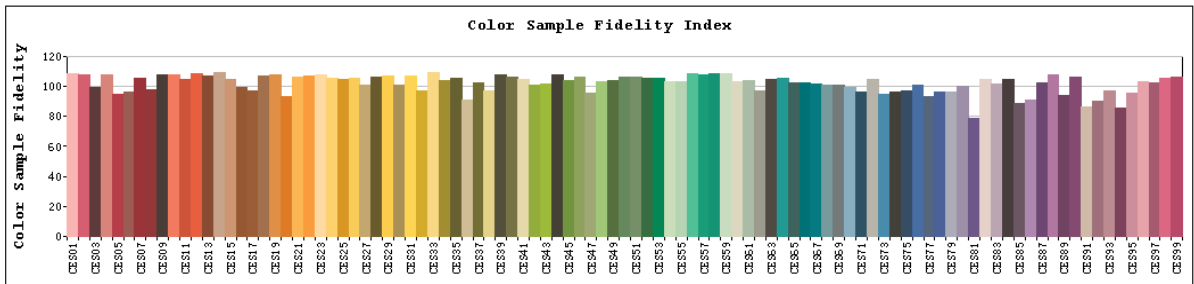
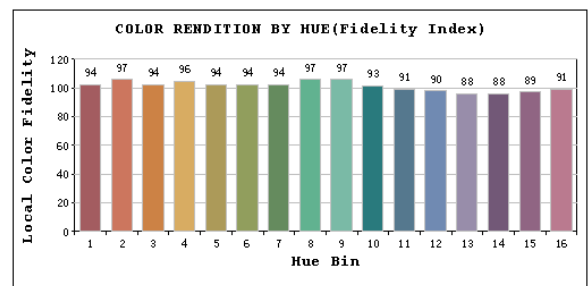
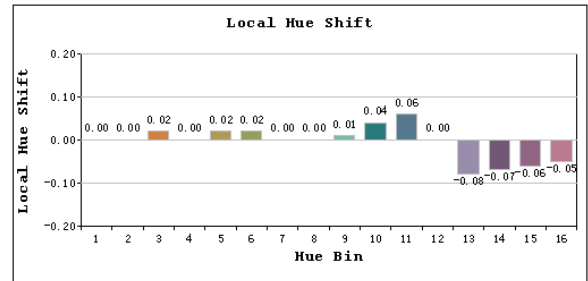
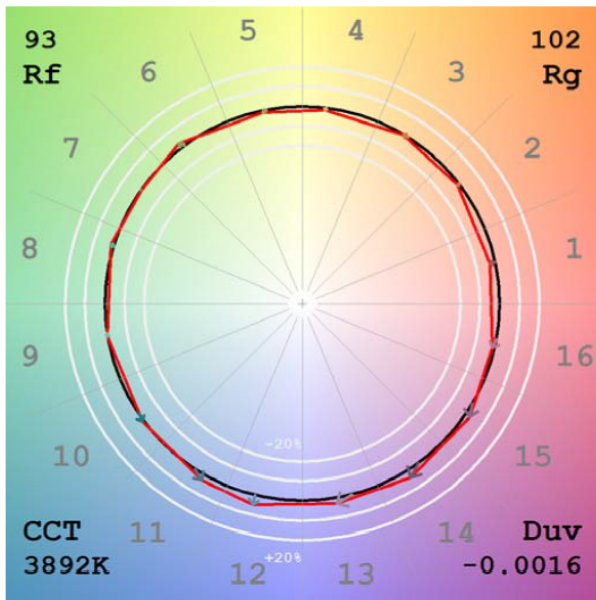
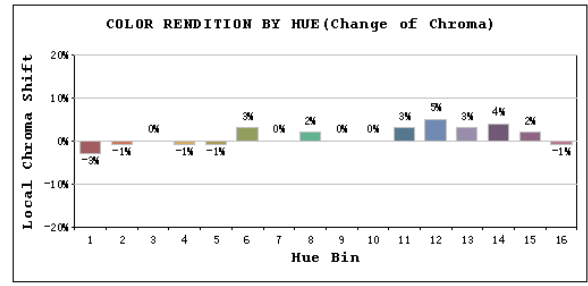
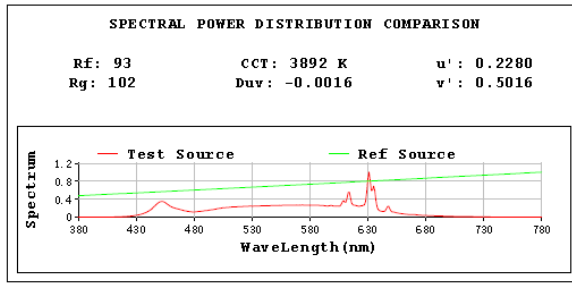
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	5703.1
Luminous Efficacy (lm/W)	116.87

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	5613.0
Luminous Efficacy (lm/W)	118.27

Spectral Power Distribution & Chromaticity Diagram



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2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-10	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CRX6	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020006	120.0	60	0.417	49.80	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

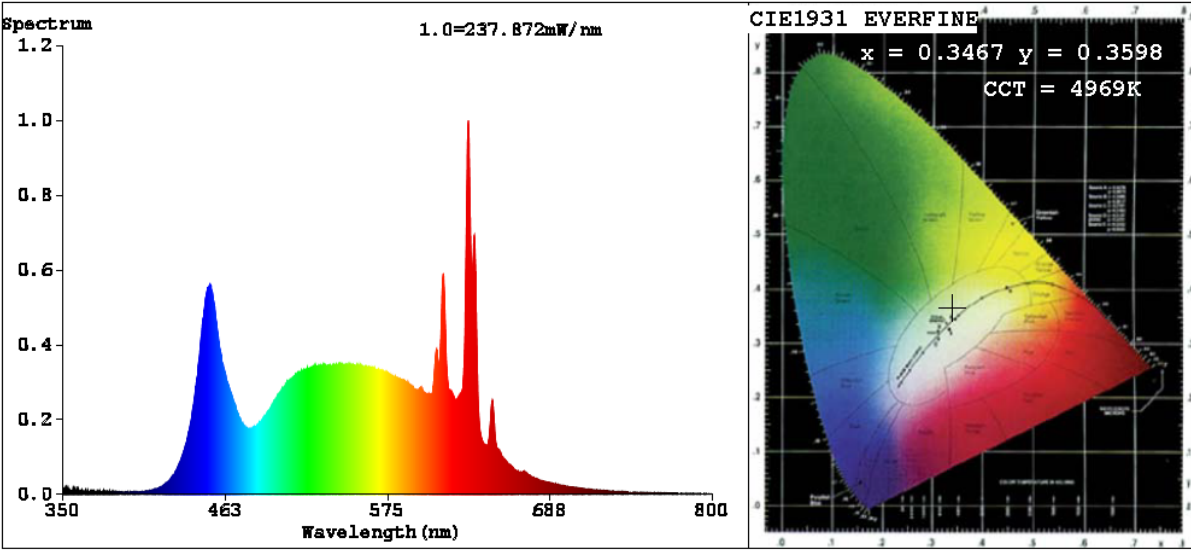
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	82
Frequency (Hz)	60	R2	95	R10	87
CCT (K)	4969	R3	93	R11	95
Duv	0.0034	R4	96	R12	68
Chromaticity (x, y)	x=0.3467 y=0.3598	R5	94	R13	96
Chromaticity (u', v')	u'=0.2093 v'=0.4888	R6	93	R14	95
Color Rendering Index (CRI)	95.1	R7	98	R15	94
R9	82	R8	95	--	--
Rg	101				
Rf	93				
Rcs,h1%	-4				

Photometric Measurement – Goniophotometer Method:

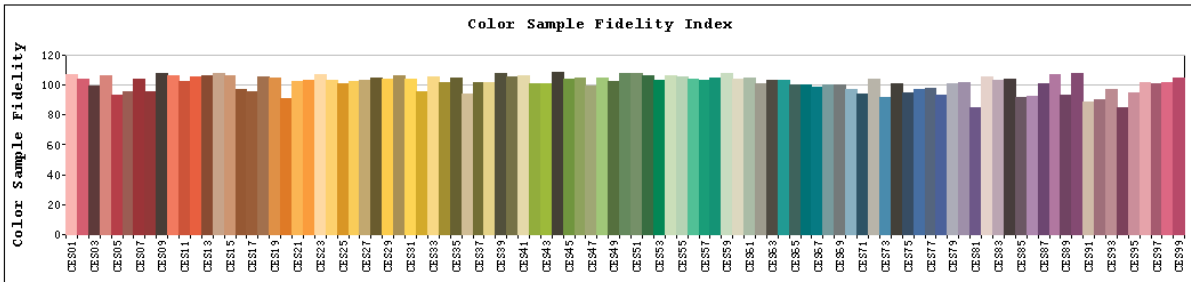
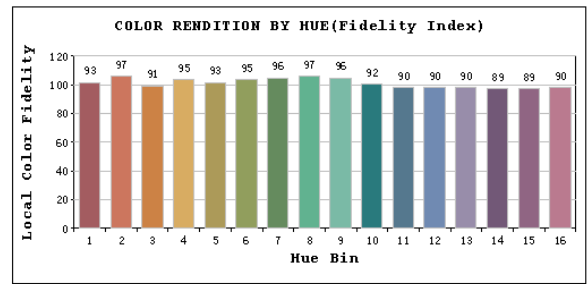
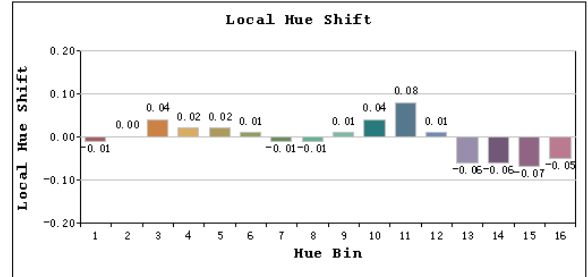
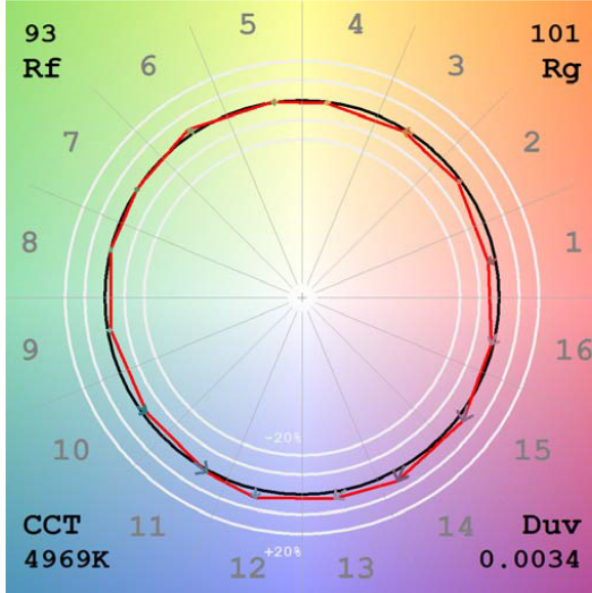
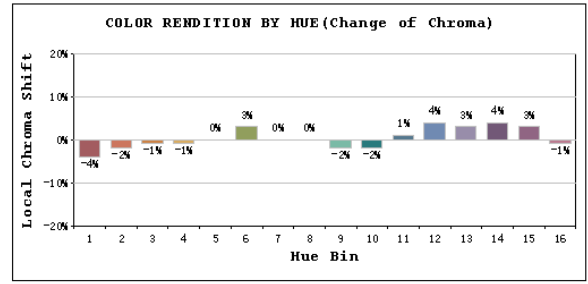
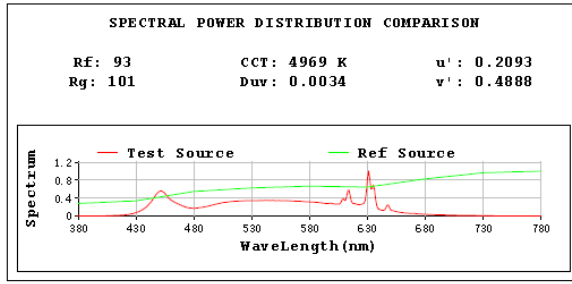
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	5482.7
Luminous Efficacy (lm/W)	110.09

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	5415.0
Luminous Efficacy (lm/W)	111.97

Spectral Power Distribution & Chromaticity Diagram

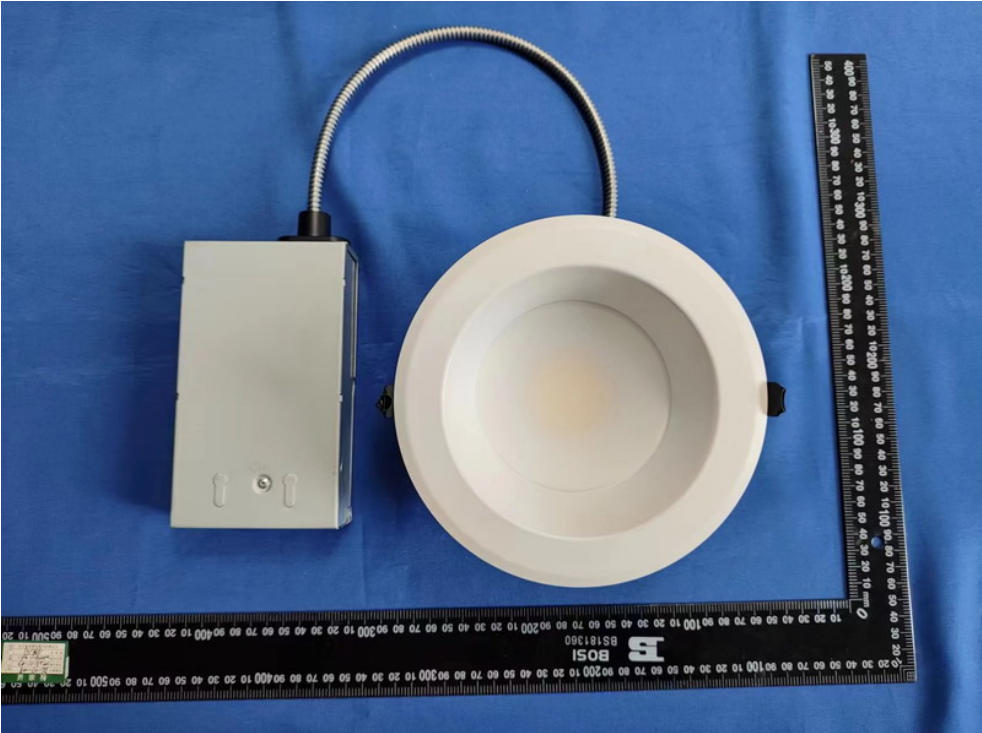
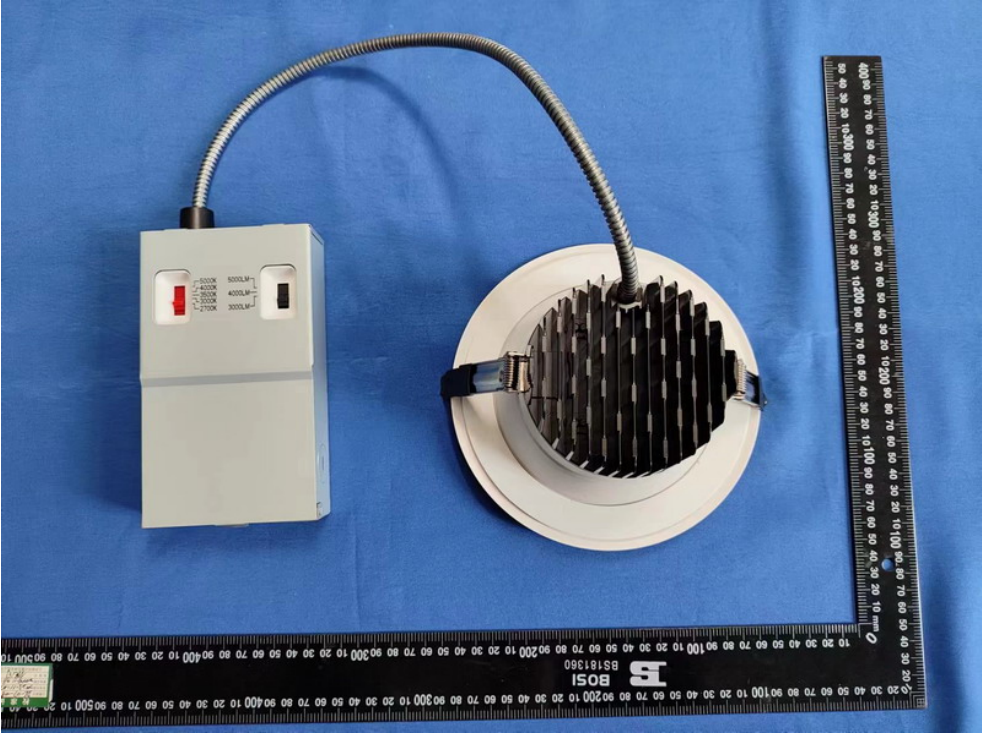


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Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
CRX6	30W-2700K setting	120	3137.8	29.60	106.01
		277	3136.0	29.94	104.74
	40W-2700K setting	120	4071.2	39.80	102.29
		277	4026.0	39.28	102.49
	50W-2700K setting	120	5030.3	49.60	101.42
		277	4961.0	48.14	103.05
	50W-3000K setting	120	5341.8	49.50	107.92
		277	5257.0	48.13	109.23
	50W-3500K setting	120	5615.6	48.40	116.02
		277	5550.0	47.11	117.81
	50W-4000K setting	120	5703.1	48.80	116.87
		277	5613.0	47.46	118.27
	50W-5000K setting	120	5482.7	49.80	110.09
		277	5415.0	48.36	111.97

3. Product Photo



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