

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): CR8

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

**Type of
Luminaire:** Downlights

Report Date: 2024-06-25

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	30.0W/24.0W/16.0 W
Rated Initial Lamp Lumen	3500lm/2700lm/1800lm (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	2024-06-20	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CR8	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202406150006	120.0	60	0.241	28.80	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

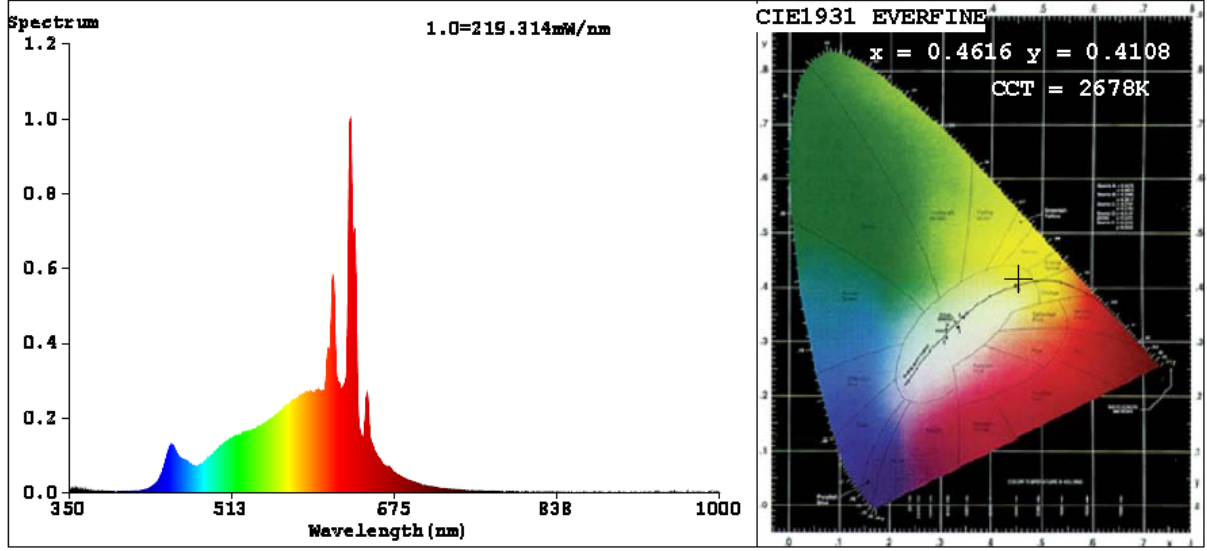
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	62
Frequency (Hz)	60	R2	100	R10	98
CCT (K)	2678	R3	99	R11	99
Duv	-0.0001	R4	97	R12	89
Chromaticity (x, y)	x=0.4616 y=0.4108	R5	97	R13	98
Chromaticity (u', v')	u'=0.2635 v'=0.5277	R6	94	R14	99
Color Rendering Index (CRI)	94.6	R7	90	R15	91
R9	62	R8	82	--	--
Rg	99				
Rf	91				
Rcs,h1%	-6				

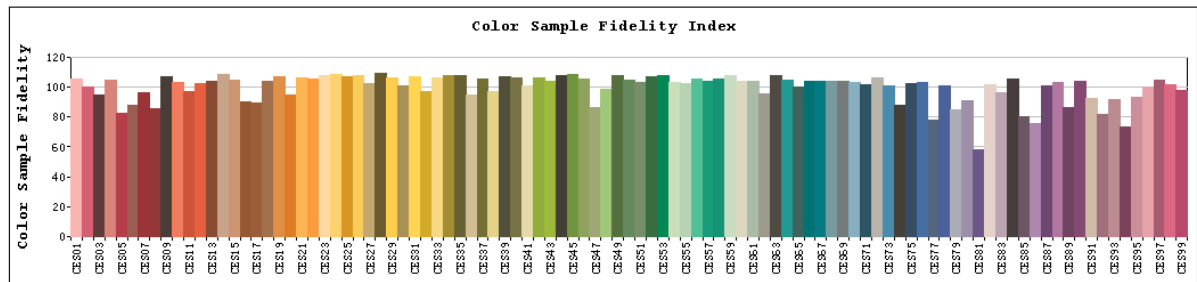
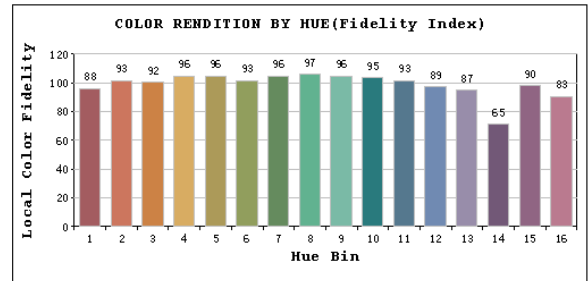
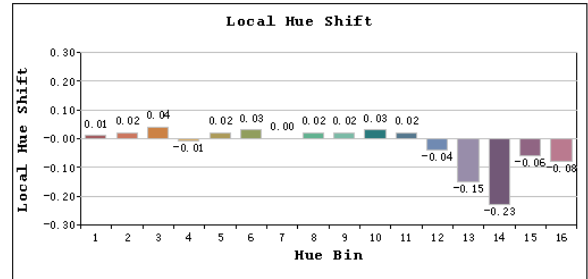
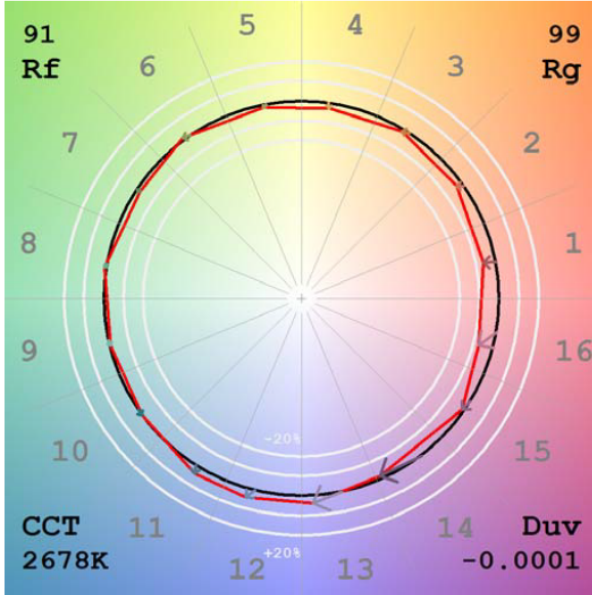
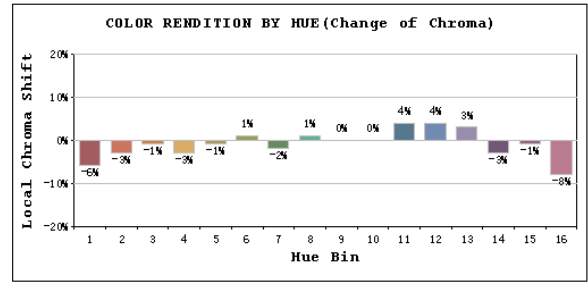
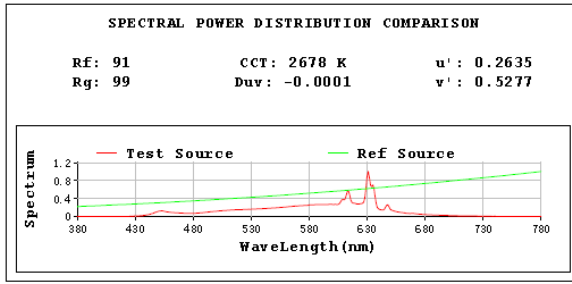
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3537.1
Luminous Efficacy (lm/W)	122.82
Beam Angle (°)	88.1
Center Beam Candle Power (cd)	1869.0

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3485.0
Luminous Efficacy (lm/W)	122.41

Spectral Power Distribution & Chromaticity Diagram



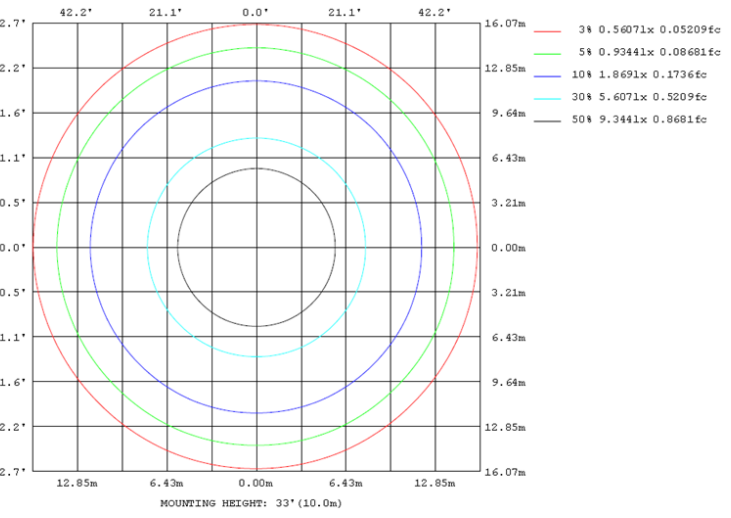
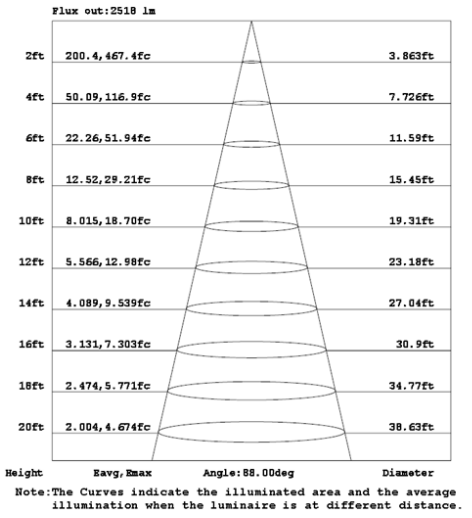
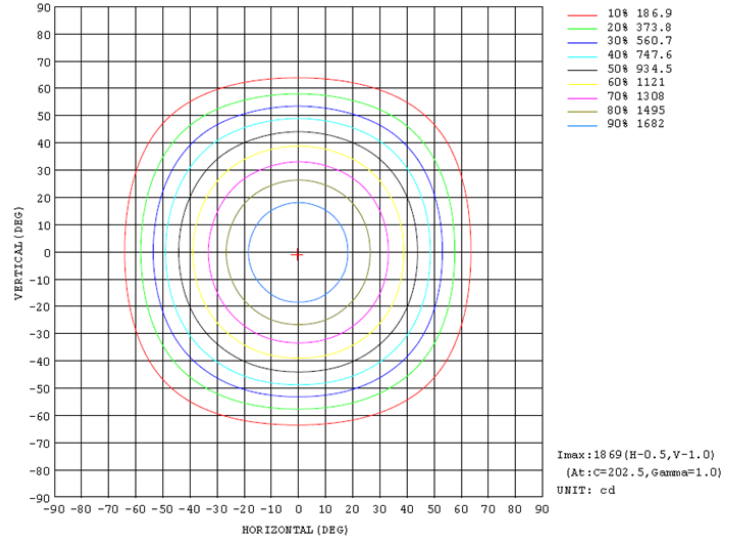
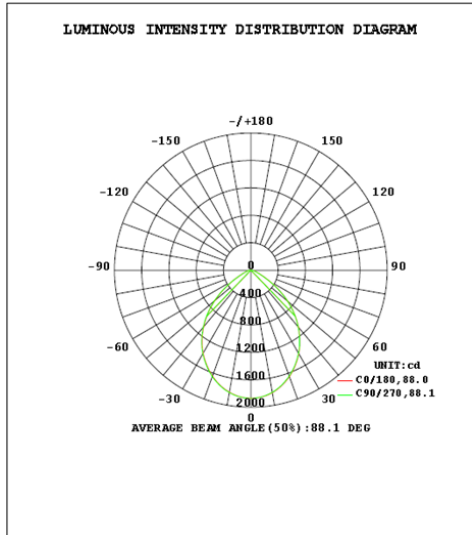


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1370.9	38.8%
0-40	2151.2	60.8%
0-60	3278.7	92.7%
60-90	258.5	7.3%
70-100	86.7	2.5%
90-120	0.0	0.0%
0-90	3537.1	100.0%
90-180	0.0	0.0%
0-180	3537.1	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	175.6	5.0%	90-100	0.0	0.0%
10-20	490.1	13.9%	100-110	0.0	0.0%
20-30	705.2	19.9%	110-120	0.0	0.0%
30-40	780.3	22.1%	120-130	0.0	0.0%
40-50	689.7	19.5%	130-140	0.0	0.0%
50-60	437.8	12.4%	140-150	0.0	0.0%
60-70	171.8	4.9%	150-160	0.0	0.0%
70-80	67.6	1.9%	160-170	0.0	0.0%
80-90	19.1	0.5%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-06-20	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CR8	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202406150006	120.0	60	0.242	28.90	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

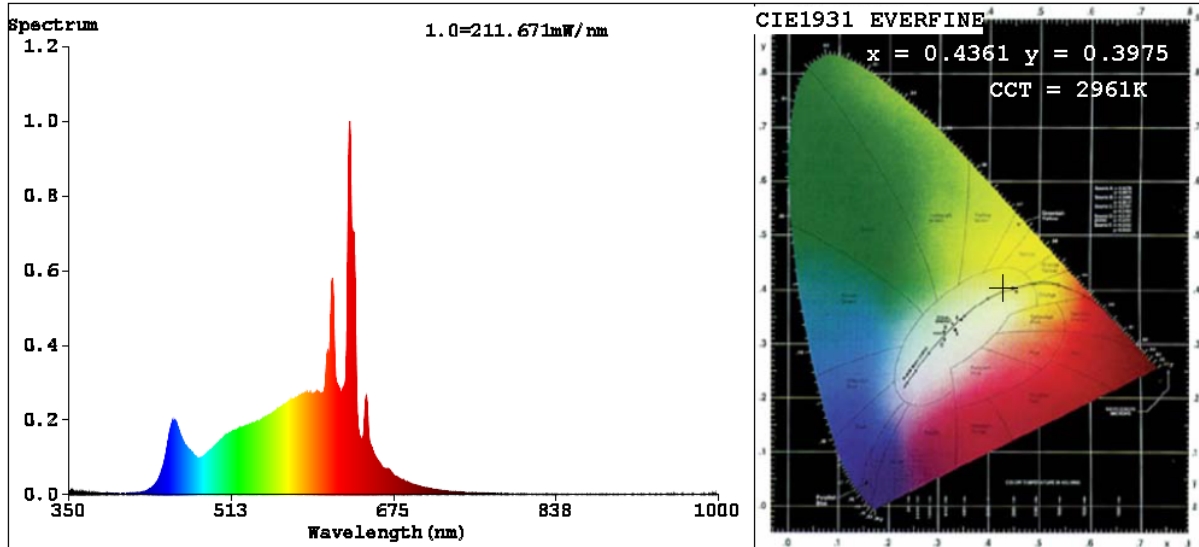
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	99	R9	74
Frequency (Hz)	60	R2	98	R10	97
CCT (K)	2961	R3	98	R11	98
Duv	-0.0025	R4	98	R12	84
Chromaticity (x, y)	x=0.4361 y=0.3975	R5	98	R13	99
Chromaticity (u', v')	u'=0.2529 v'=0.5187	R6	92	R14	99
Color Rendering Index (CRI)	95.1	R7	91	R15	96
R9	74	R8	87	--	--
Rg	100				
Rf	92				
Rcs,h1%	-4				

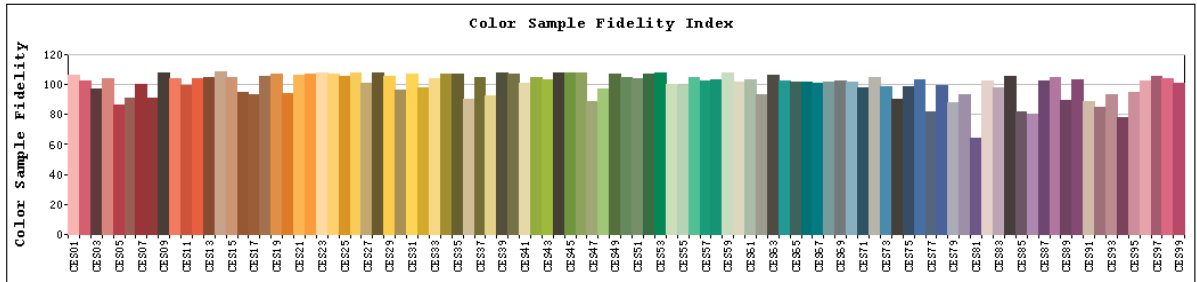
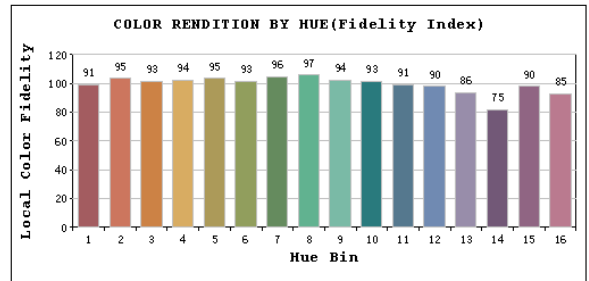
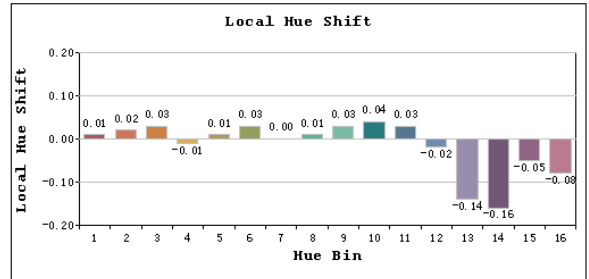
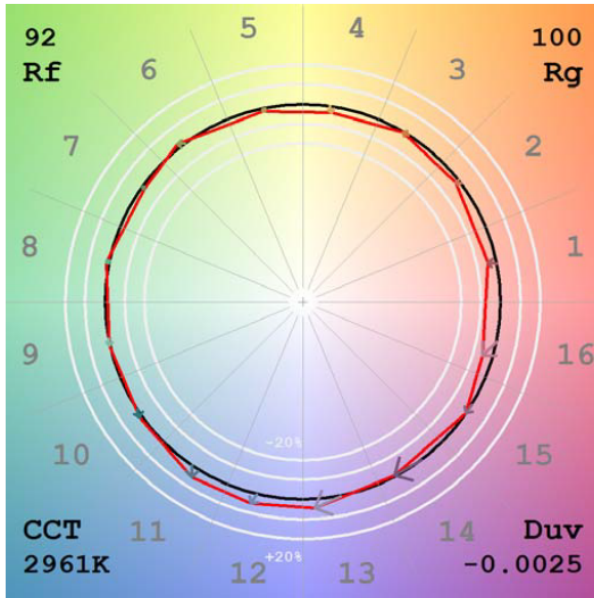
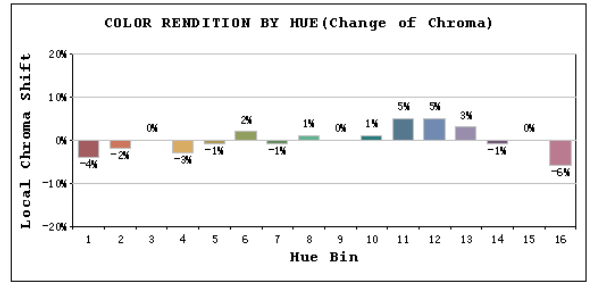
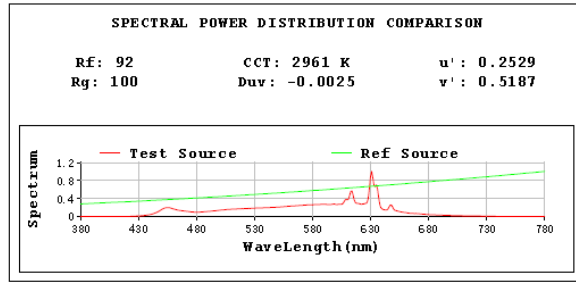
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3667.6
Luminous Efficacy (lm/W)	126.91

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3611.0
Luminous Efficacy (lm/W)	126.35

Spectral Power Distribution & Chromaticity Diagram





2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2024-06-20	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CR8	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202406150006	120.0	60	0.238	28.50	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

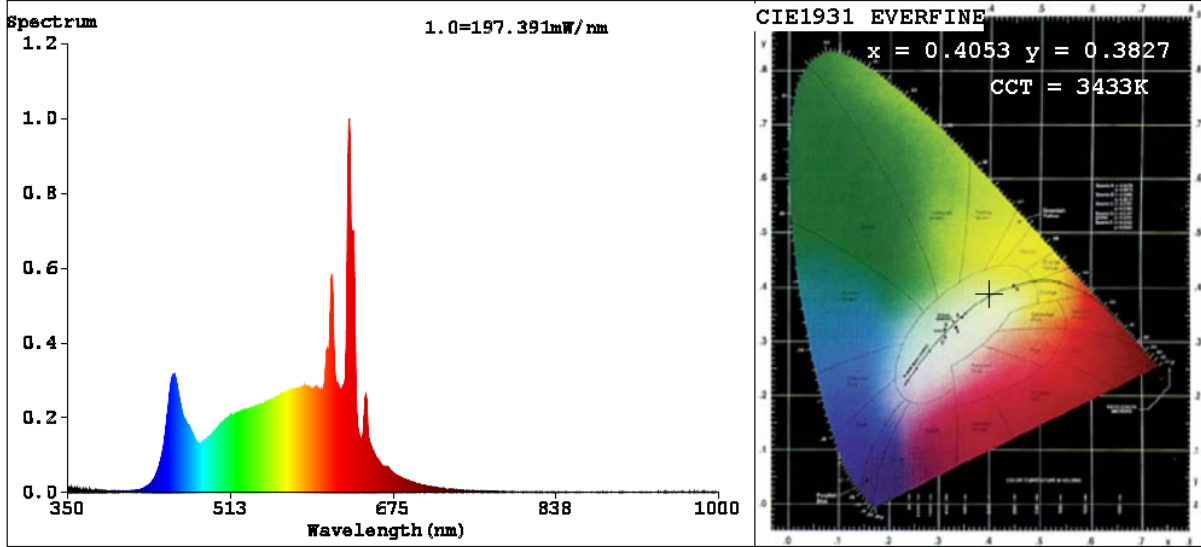
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	85
Frequency (Hz)	60	R2	97	R10	95
CCT (K)	3433	R3	98	R11	97
Duv	-0.0036	R4	98	R12	79
Chromaticity (x, y)	x=0.4053 y=0.3827	R5	97	R13	97
Chromaticity (u', v')	u'=0.2391 v'=0.5079	R6	92	R14	99
Color Rendering Index (CRI)	95.3	R7	93	R15	98
R9	85	R8	92	--	--
Rg	100				
Rf	92				
Rcs,h1%	-3				

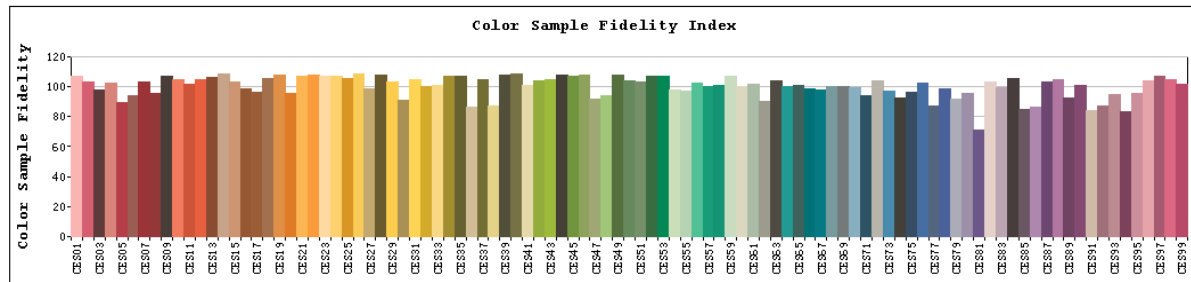
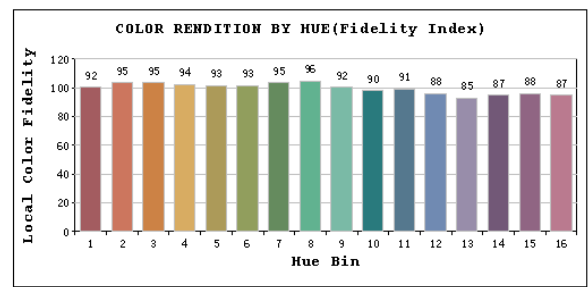
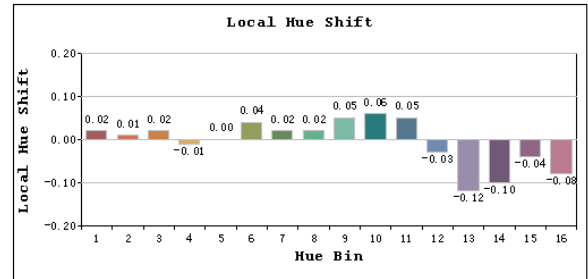
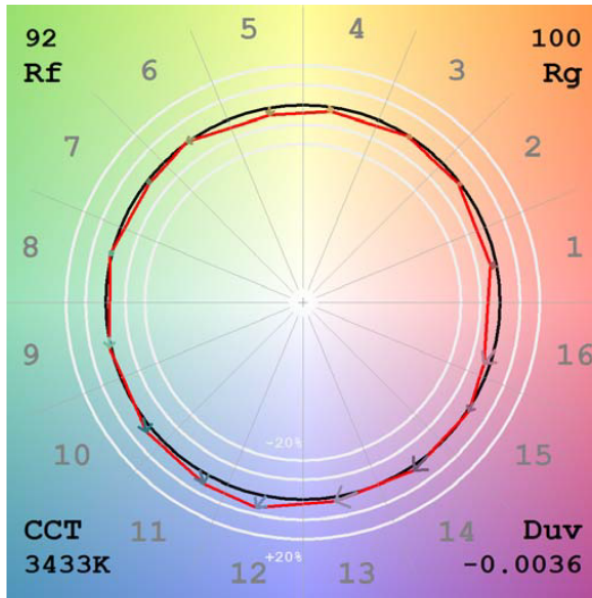
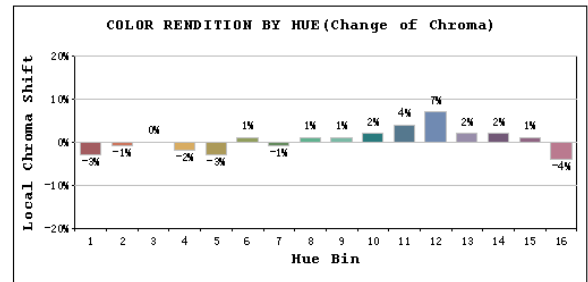
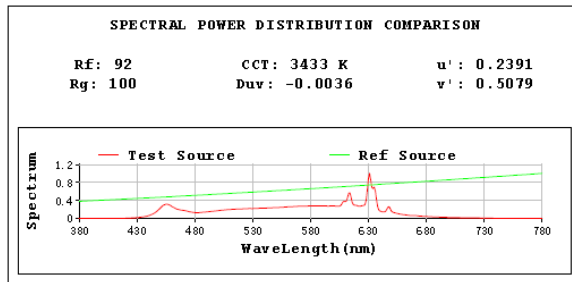
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3805.7
Luminous Efficacy (lm/W)	133.53

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3752.0
Luminous Efficacy (lm/W)	132.96

Spectral Power Distribution & Chromaticity Diagram





2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2024-06-20	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CR8	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202406150006	120.0	60	0.239	28.60	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

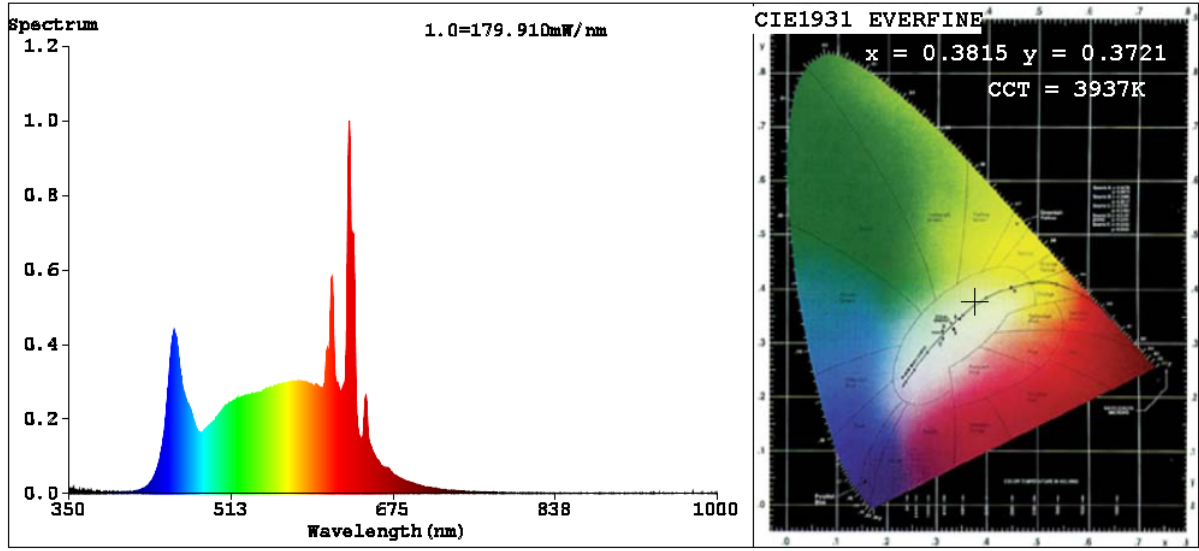
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	89
Frequency (Hz)	60	R2	97	R10	97
CCT (K)	3937	R3	99	R11	99
Duv	-0.0025	R4	97	R12	75
Chromaticity (x, y)	x=0.3815 y=0.3721	R5	96	R13	97
Chromaticity (u', v')	u'=0.2277 v'=0.4997	R6	93	R14	99
Color Rendering Index (CRI)	95.7	R7	93	R15	97
R9	89	R8	93	--	--
Rg	100				
Rf	91				
Rcs,h1%	-3				

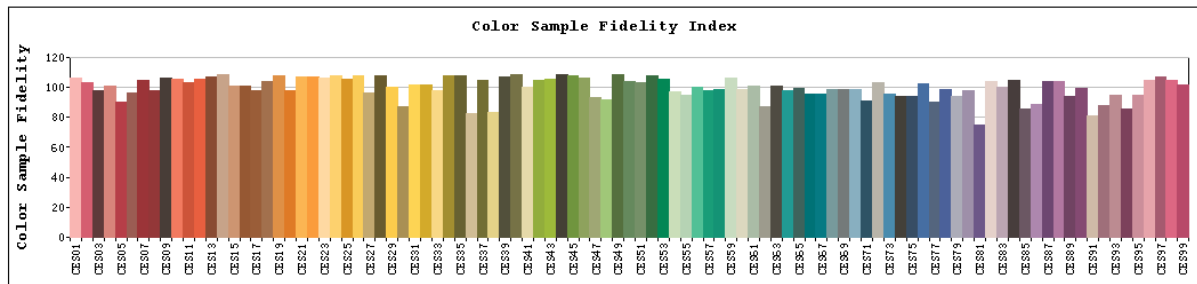
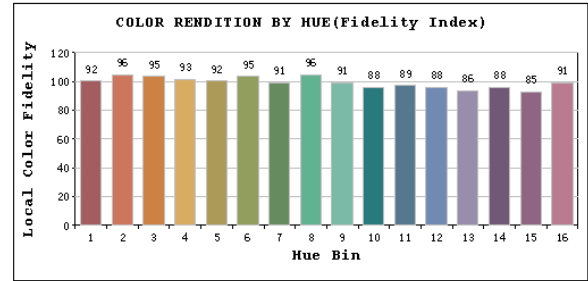
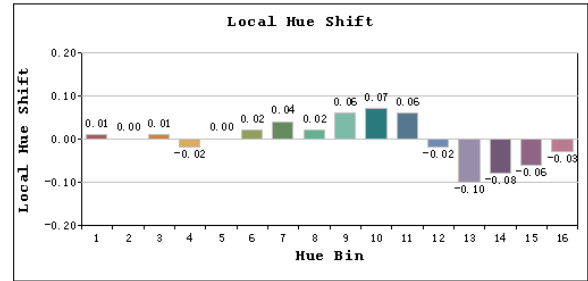
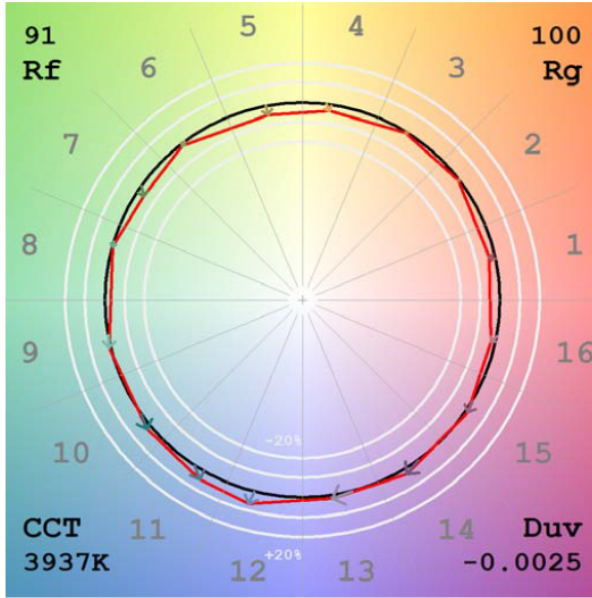
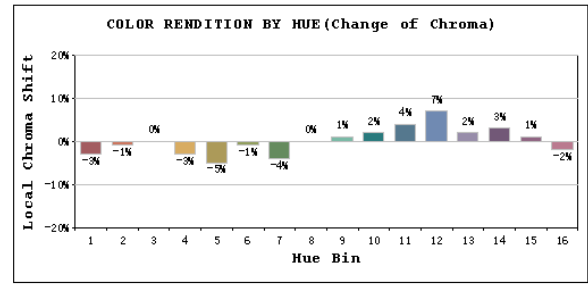
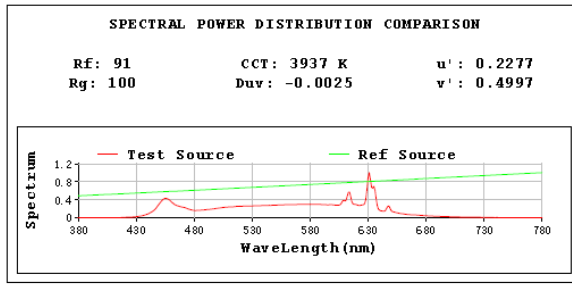
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3872.0
Luminous Efficacy (lm/W)	135.38

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3810.0
Luminous Efficacy (lm/W)	134.63

Spectral Power Distribution & Chromaticity Diagram





2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2024-06-20	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	CR8	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202406150006	120.0	60	0.241	28.90	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

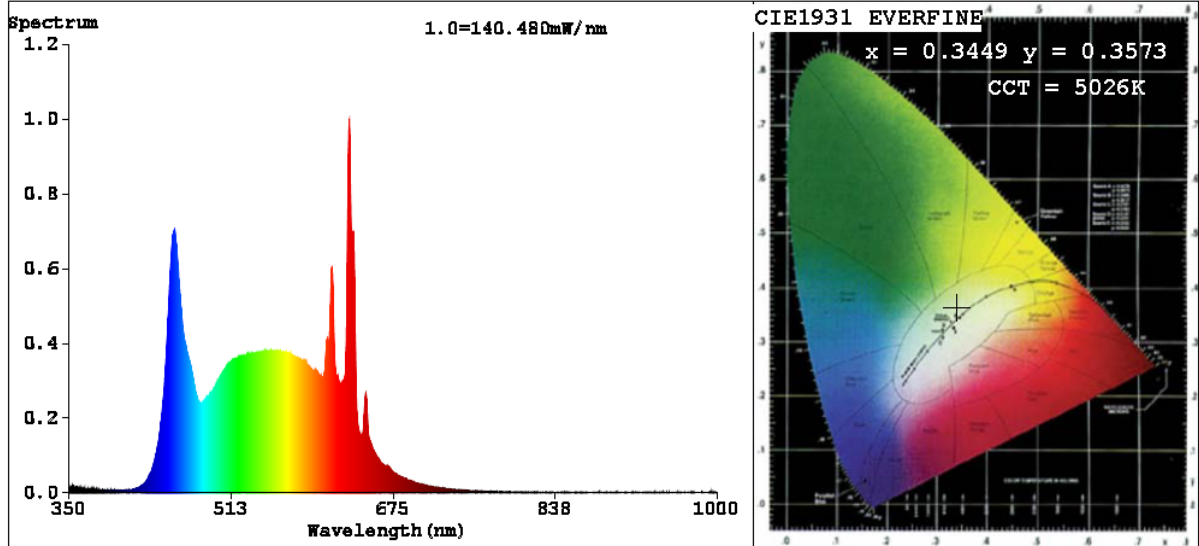
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	80
Frequency (Hz)	60	R2	99	R10	96
CCT (K)	5026	R3	98	R11	96
Duv	0.0029	R4	95	R12	72
Chromaticity (x, y)	x=0.3449 y=0.3573	R5	95	R13	98
Chromaticity (u', v')	u'=0.2091 v'=0.4874	R6	95	R14	98
Color Rendering Index (CRI)	95.4	R7	94	R15	95
R9	80	R8	91	--	--
Rg	98				
Rf	91				
Rcs,h1%	-4				

Photometric Measurement – Goniophotometer Method:

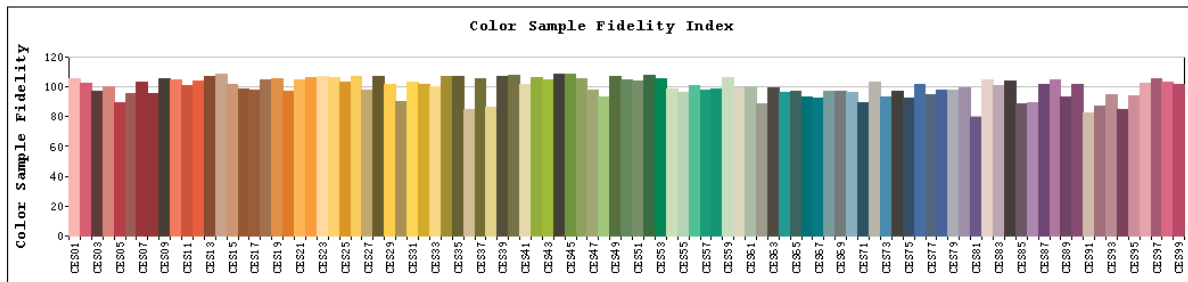
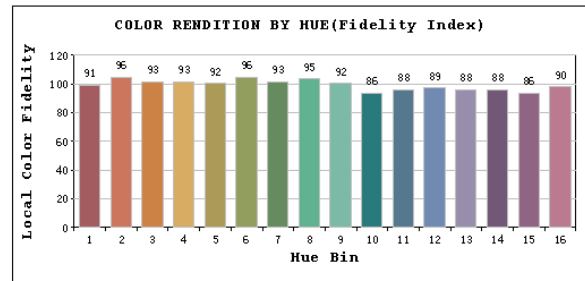
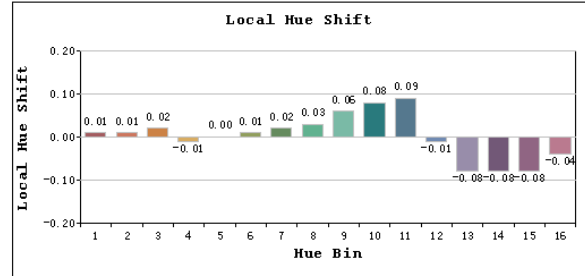
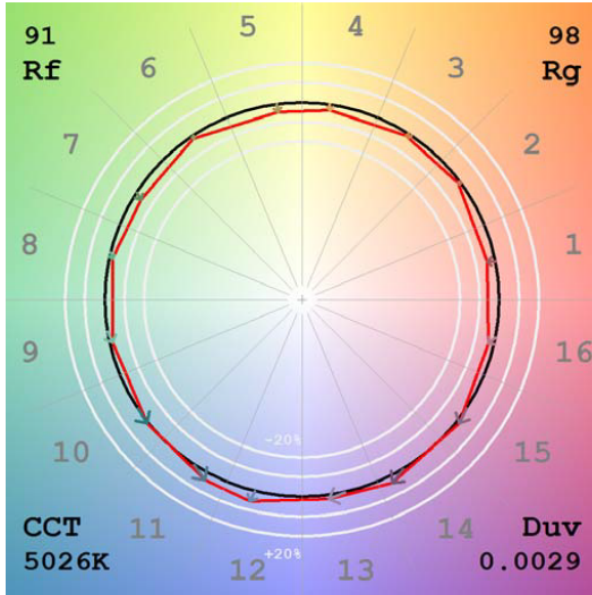
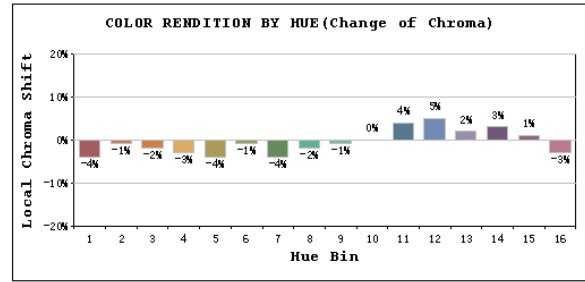
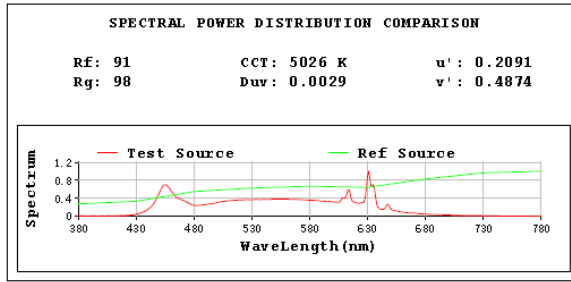
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3854.3
Luminous Efficacy (lm/W)	133.37

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3803.0
Luminous Efficacy (lm/W)	133.07

Spectral Power Distribution & Chromaticity Diagram

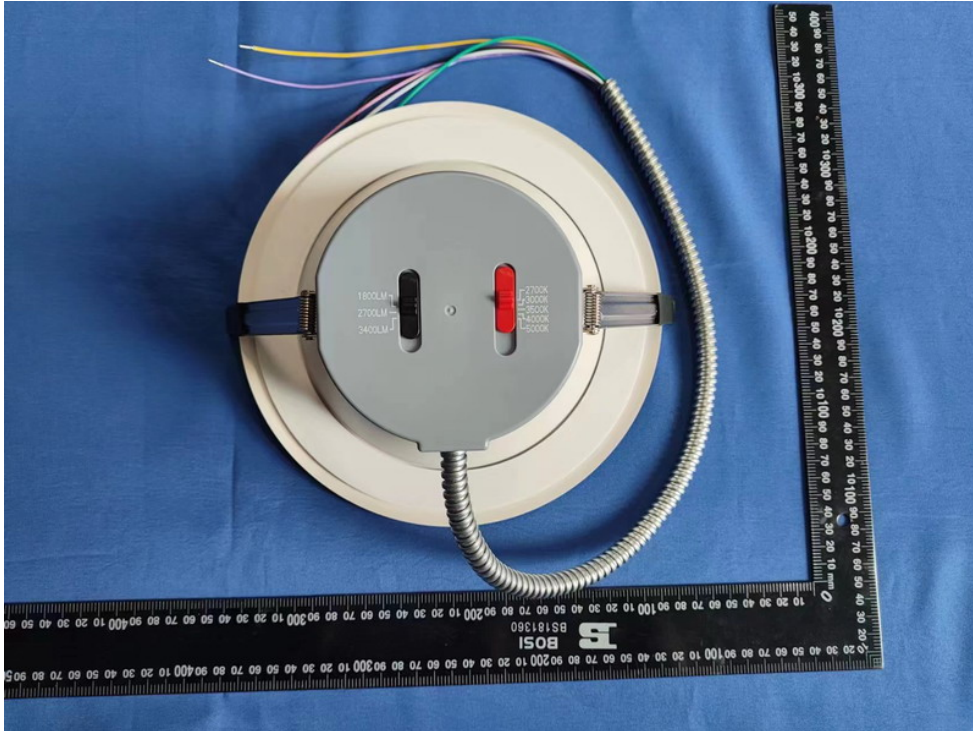


TM30



Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
CR8	16W-2700K setting	120	1873.4	15.30	122.44
		277	1887.0	15.98	118.11
	24W-2700K setting	120	2788.4	23.10	120.71
		277	2752.0	23.29	118.18
	30W-2700K setting	120	3537.1	28.80	122.82
		277	3485.0	28.47	122.41
	30W-3000K setting	120	3667.6	28.90	126.91
		277	3611.0	28.58	126.35
	30W-3500K setting	120	3805.7	28.50	133.53
		277	3752.0	28.22	132.96
	30W-4000K setting	120	3872.0	28.60	135.38
		277	3810.0	28.30	134.63
	30W-5000K setting	120	3854.3	28.90	133.37
		277	3803.0	28.58	133.07

3. Product Photo



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