

**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): ECLPS4B**

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

**Type of  
Luminaire:** Downlights

**Report Date:** 2024-06-27

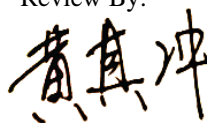
**Prepared By:**

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

<b>1.1 Rated Values:</b>	
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	7.5W
Rated Initial Lamp Lumen	700lm (mode2700K)
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>	2024-06-24	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	ECLPS4B	2700K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202406210013	120.0	60	0.072	7.37	0.849

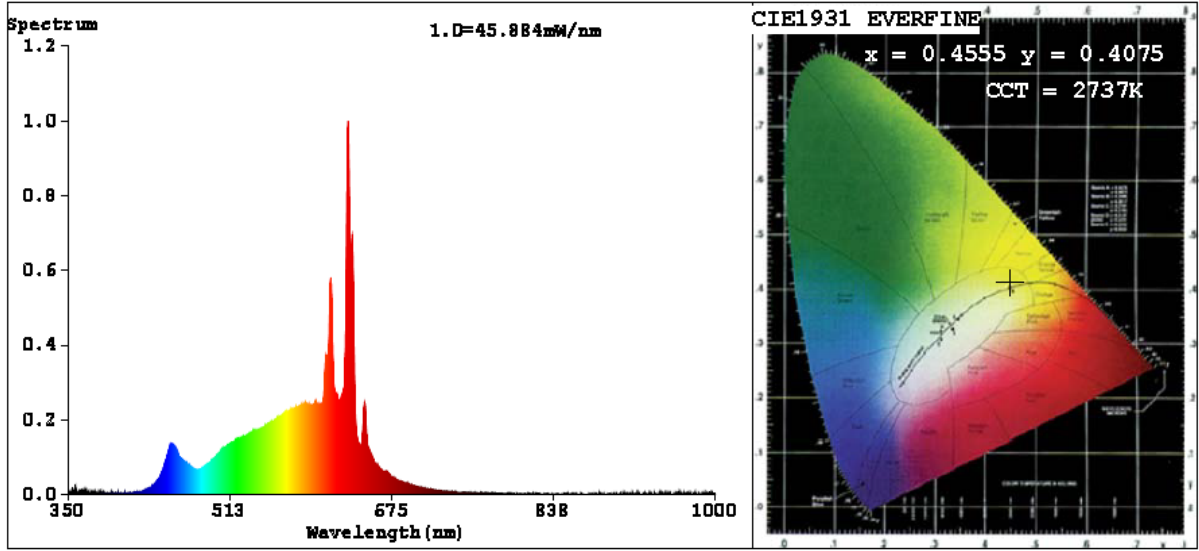
**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	99	R9	68
Frequency (Hz)	60	R2	100	R10	97
CCT (K)	2737	R3	99	R11	98
Duv	-0.0008	R4	98	R12	87
Chromaticity (x, y)	x=0.4555 y=0.4075	R5	98	R13	99
Chromaticity (u', v')	u'=0.2611 v'=0.5255	R6	95	R14	98
Color Rendering Index (CRI)	95.7	R7	92	R15	94
R9	68	R8	86	--	--
Rg	100				
Rf	92				
Rcs,h1%	-5				

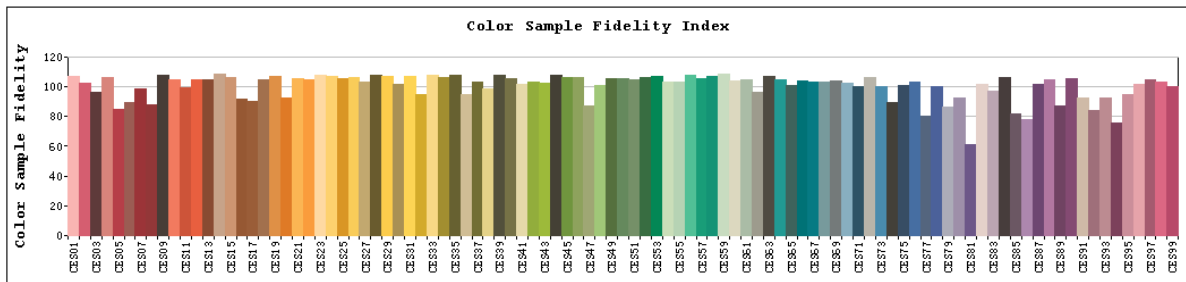
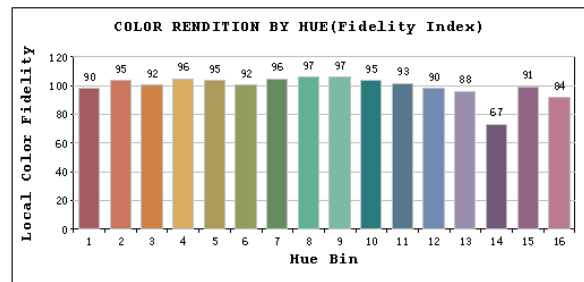
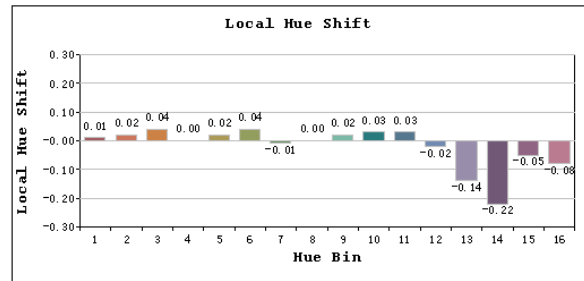
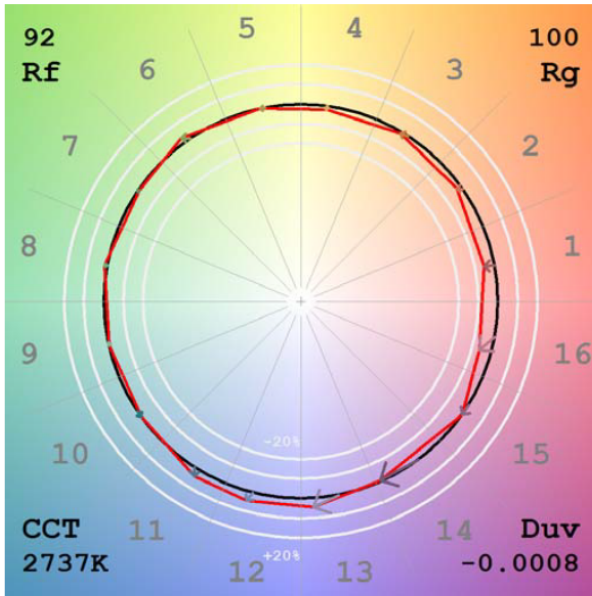
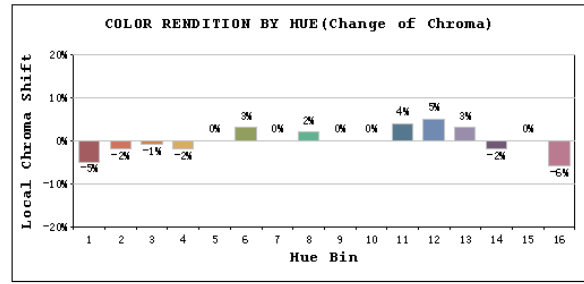
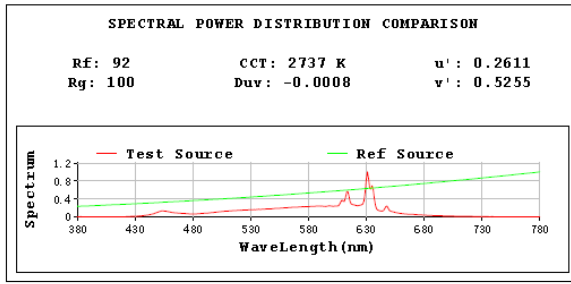
**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	701.5
Luminous Efficacy (lm/W)	95.18
Beam Angle (°)	89.4
Center Beam Candle Power (cd)	337.4

# Spectral Power Distribution & Chromaticity Diagram



# TM30



# Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	249.0	35.5%
0-40	390.3	55.6%
0-60	618.7	88.2%
60-90	82.7	11.8%
70-100	23.2	3.3%
90-120	0.0	0.0%
0-90	701.5	100.0%
90-180	0.0	0.0%
0-180	701.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	31.7	4.5%	90-100	0.0	0.0%
10-20	89.0	12.7%	100-110	0.0	0.0%
20-30	128.3	18.3%	110-120	0.0	0.0%
30-40	141.3	20.1%	120-130	0.0	0.0%
40-50	128.8	18.4%	130-140	0.0	0.0%
50-60	99.7	14.2%	140-150	0.0	0.0%
60-70	59.5	8.5%	150-160	0.0	0.0%
70-80	20.3	2.9%	160-170	0.0	0.0%
80-90	2.9	0.4%	170-180	0.0	0.0%

## Photometric Data

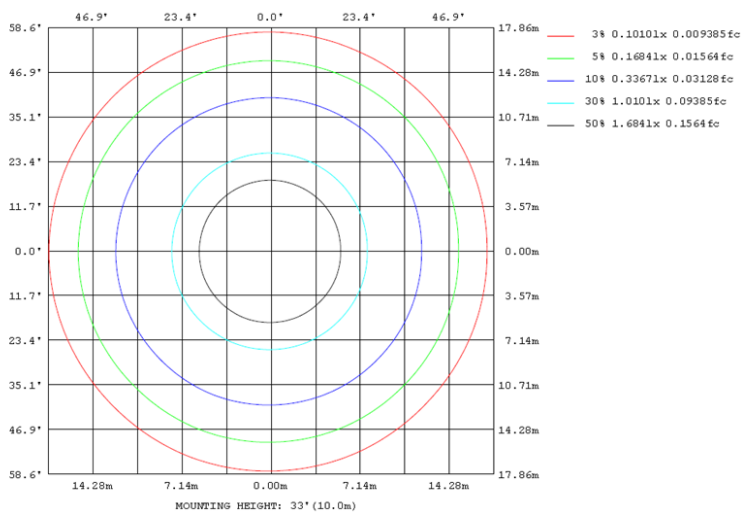
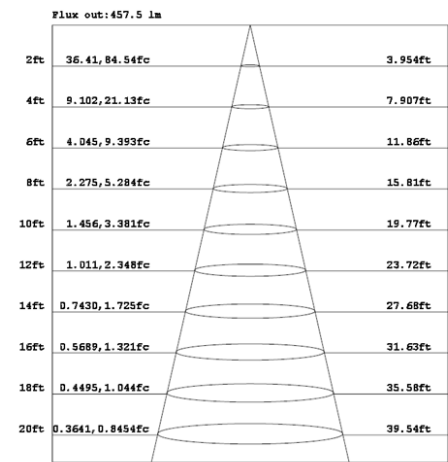
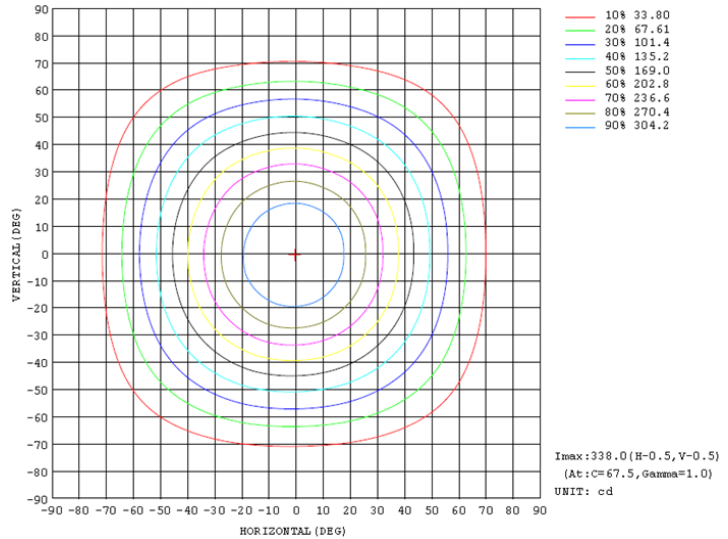
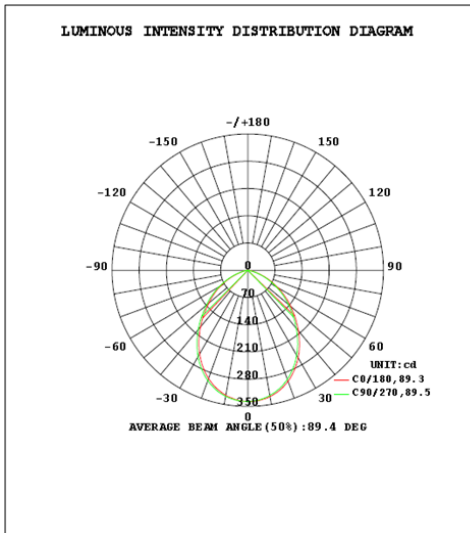


Table--1

UNIT: cd

T (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	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337
5	334	334	335	335	335	336	335	336	336	335	335	334	334	334	334	334
10	327	327	328	329	329	330	330	330	329	329	328	328	327	326	326	326
15	314	315	316	317	318	319	319	319	319	318	317	316	315	314	313	314
20	296	298	299	301	302	303	303	304	303	302	301	299	298	296	296	296
25	274	276	278	280	281	283	284	284	284	282	281	278	277	275	275	275
30	248	251	252	255	257	259	260	260	260	258	257	254	252	250	249	249
35	220	222	224	227	229	231	231	233	233	231	229	226	224	222	221	220
40	190	192	193	197	199	202	202	203	203	201	200	197	195	192	192	191
45	160	162	163	166	169	172	172	173	173	171	170	167	165	163	162	161
50	132	133	135	138	140	143	142	144	145	143	142	139	137	135	134	133
55	106	108	108	111	113	115	115	116	117	115	114	112	110	108	108	107
60	80.8	82.1	82.7	84.8	85.9	87.9	88.1	89.4	90.1	88.5	87.5	85.0	84.1	82.3	82.4	81.6
65	56.0	57.3	58.0	59.7	60.6	62.1	62.5	63.7	64.5	62.8	61.9	59.5	58.8	57.3	57.3	56.7
70	33.4	34.7	35.2	36.8	37.3	38.8	38.9	40.0	40.7	39.4	38.5	36.6	35.9	34.7	34.7	34.0
75	15.4	16.4	16.9	18.1	18.7	19.7	19.8	20.4	20.7	19.7	19.2	17.9	17.4	16.4	16.2	15.8
80	5.42	5.85	6.08	6.71	6.90	7.47	7.50	7.74	7.90	7.28	7.01	6.35	6.20	5.73	5.72	5.54
85	2.29	2.42	2.55	2.66	2.70	2.67	2.58	2.48	2.47	2.48	2.48	2.47	2.44	2.36	2.35	2.32
90	0.19	0.18	0.19	0.19	0.23	0.27	0.30	0.29	0.29	0.26	0.19	0.17	0.17	0.17	0.17	0.17

## 2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-06-24	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	ECLPS4B	3000K	

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202406210013	120.0	60	0.073	7.41	0.840

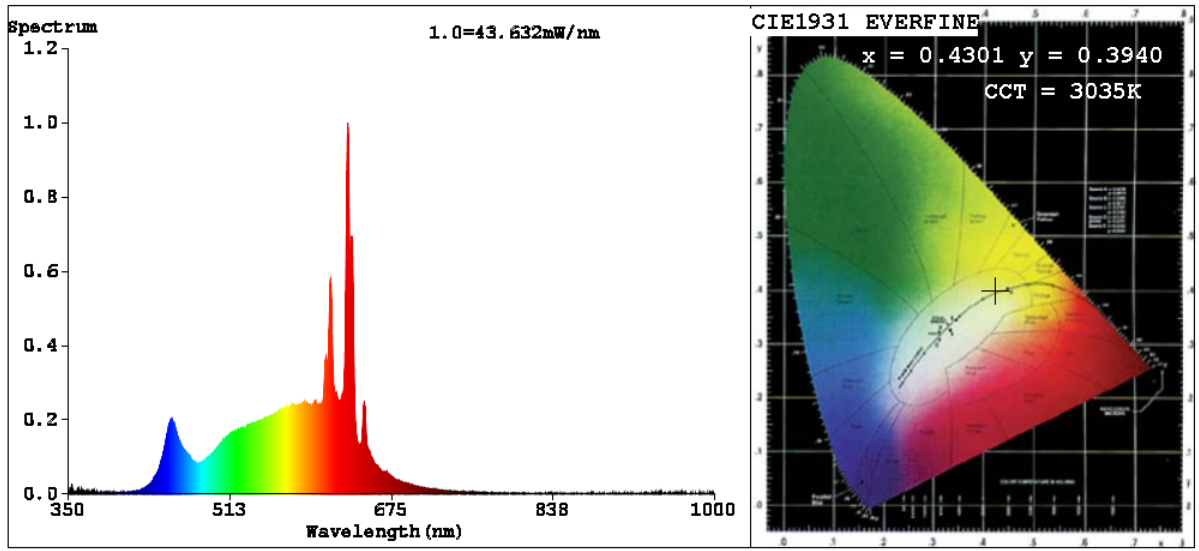
### Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	79
Frequency (Hz)	60	R2	99	R10	98
CCT (K)	3035	R3	98	R11	95
Duv	-0.0031	R4	98	R12	85
Chromaticity (x, y)	x=0.4301 y=0.3940	R5	99	R13	99
Chromaticity (u', v')	u'=0.2505 v'=0.5163	R6	94	R14	97
Color Rendering Index (CRI)	96.3	R7	94	R15	98
R9	79	R8	91	--	--
Rg	102				
Rf	92				
Rcs,h1%	-4				

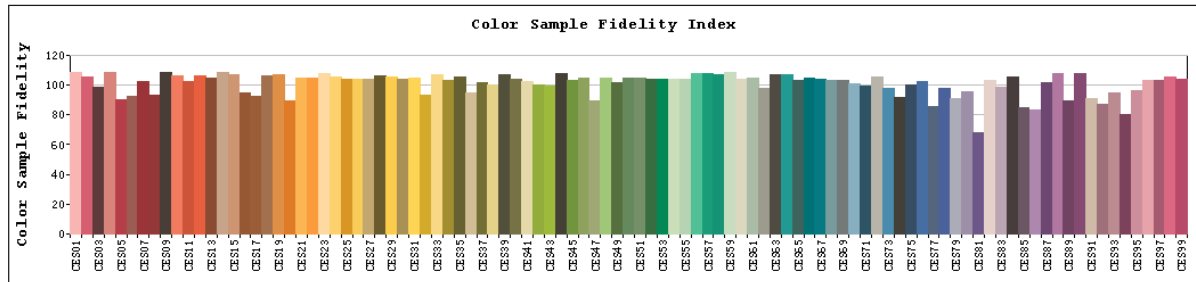
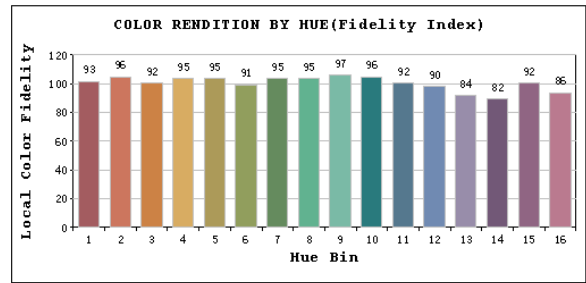
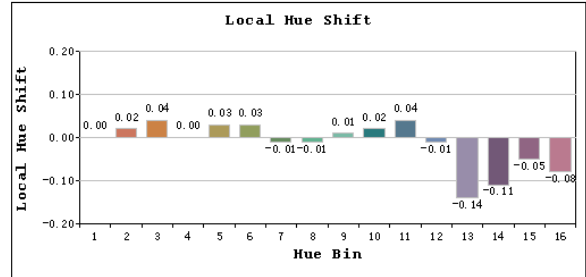
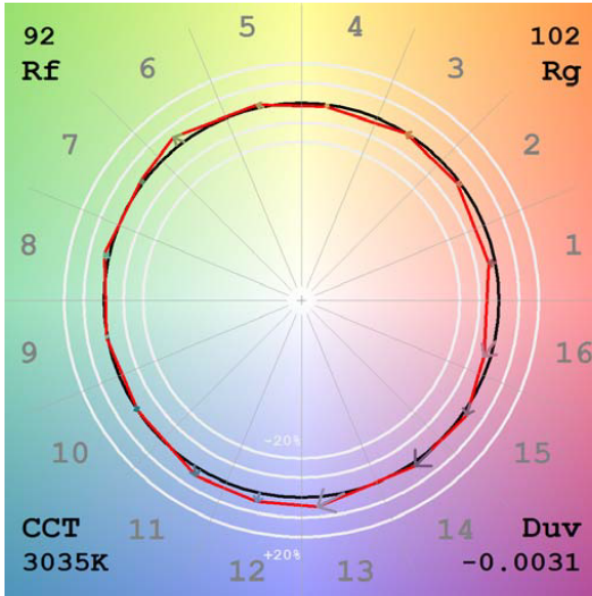
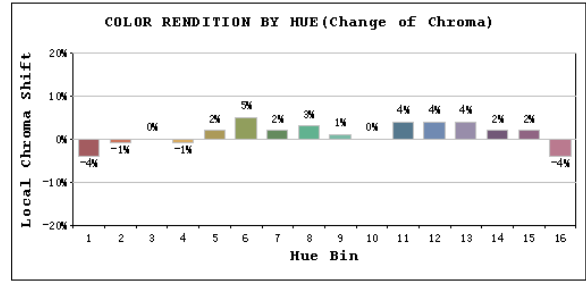
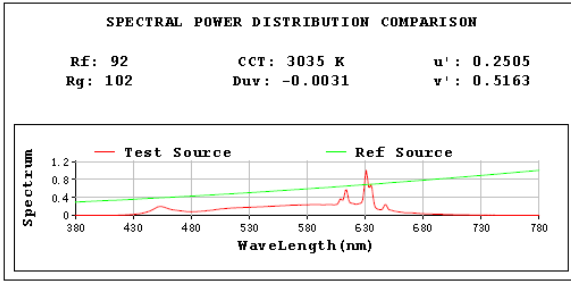
### Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	711.7
Luminous Efficacy (lm/W)	96.05

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.3 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-06-24	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	ECLPS4B	3500K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202406210013	120.0	60	0.075	7.46	0.827

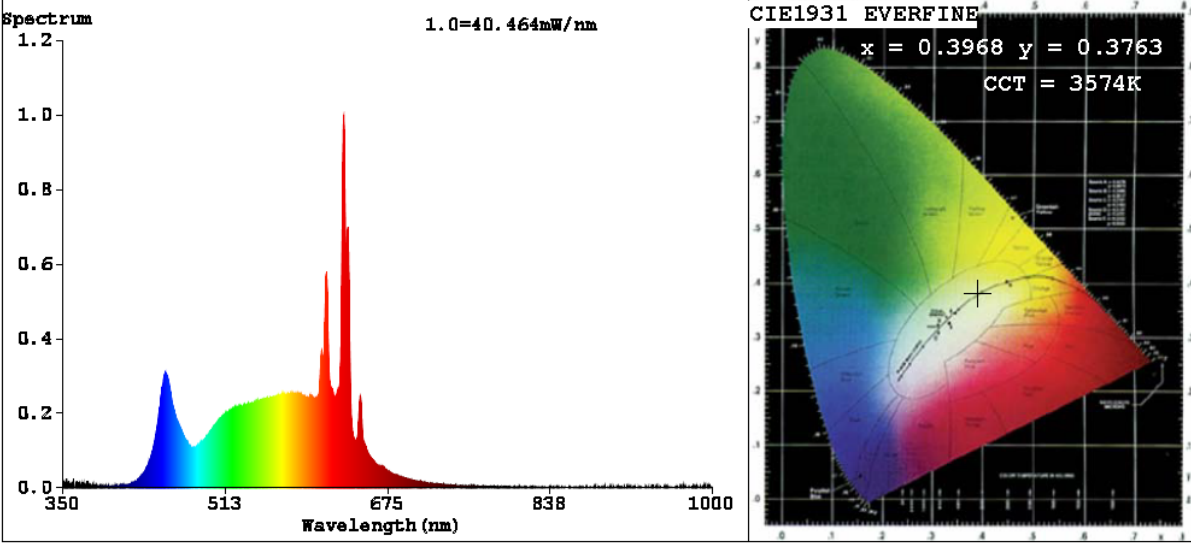
**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	93
Frequency (Hz)	60	R2	98	R10	98
CCT (K)	3574	R3	96	R11	93
Duv	-0.0046	R4	97	R12	82
Chromaticity (x, y)	x=0.3968 y=0.3763	R5	97	R13	96
Chromaticity (u', v')	u'=0.2362 v'=0.5038	R6	94	R14	96
Color Rendering Index (CRI)	96.4	R7	97	R15	97
R9	93	R8	97	--	--
Rg	103				
Rf	93				
Rcs,h1%	-2				

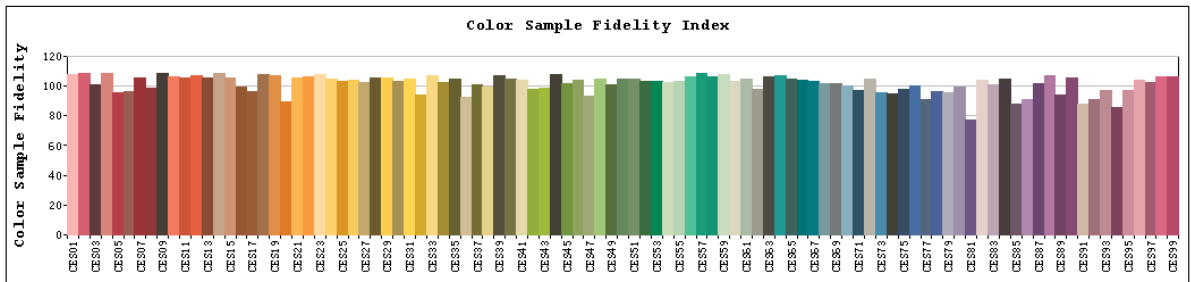
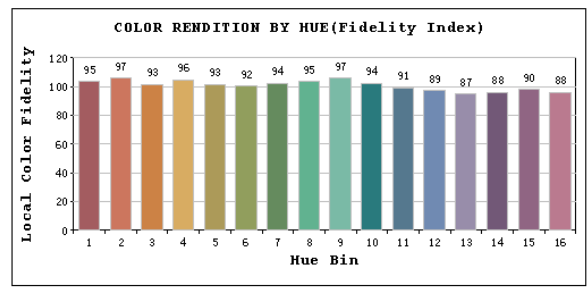
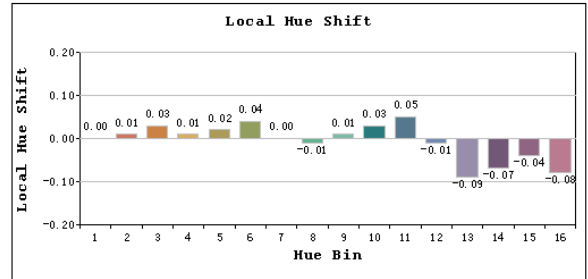
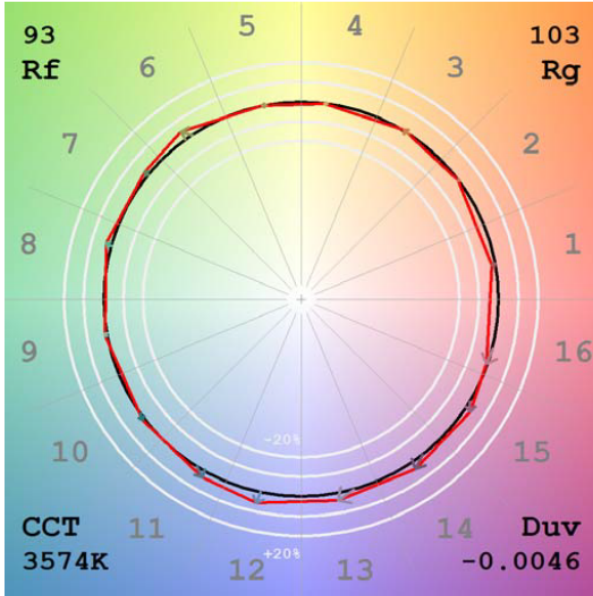
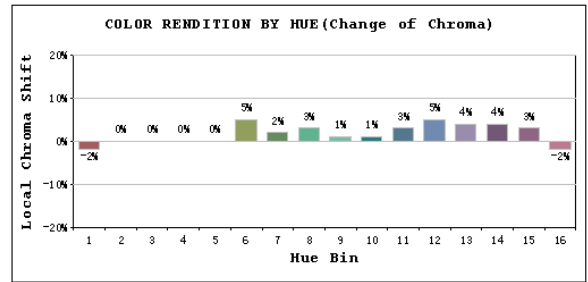
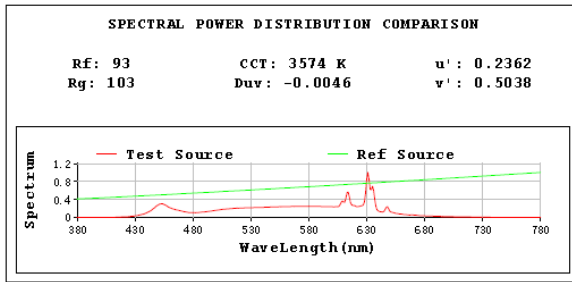
**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	723.7
Luminous Efficacy (lm/W)	97.01

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.4 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-06-24	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	ECLPS4B	4000K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202406210013	120.0	60	0.074	7.44	0.833

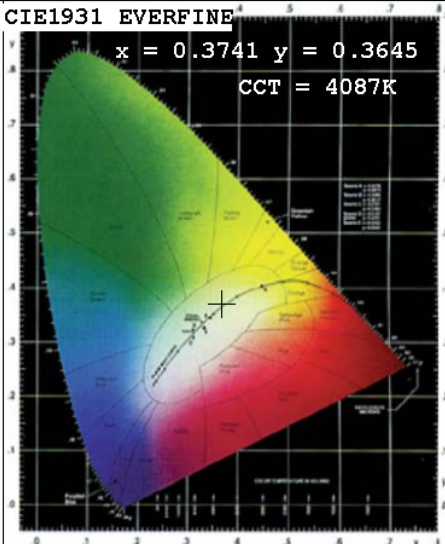
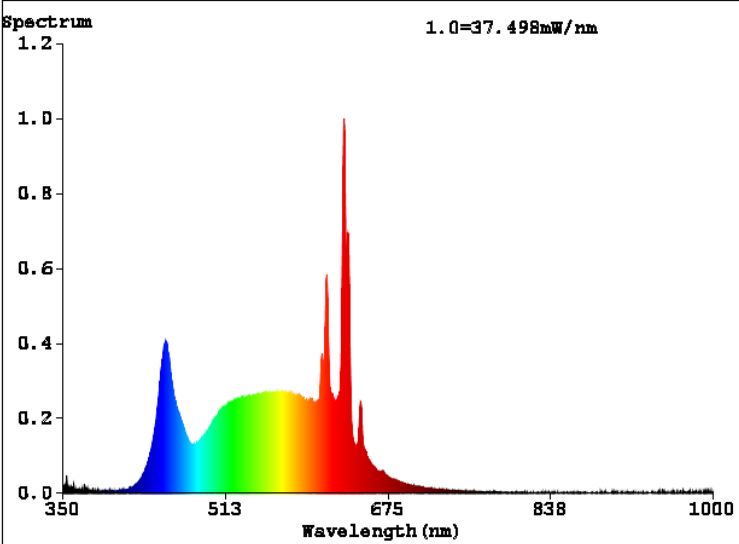
**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

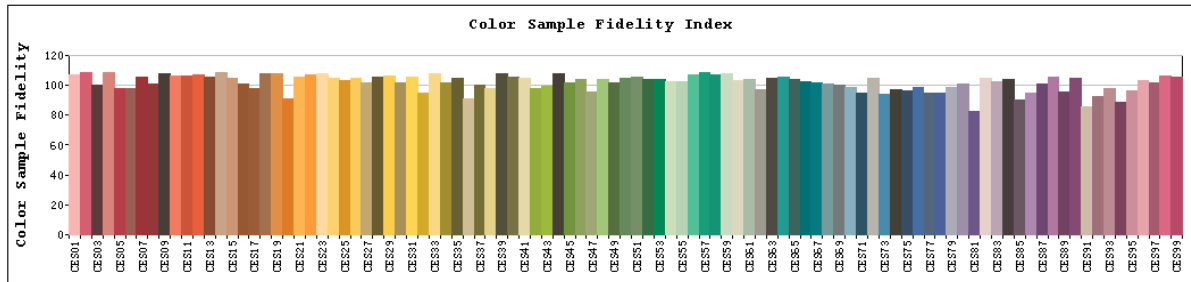
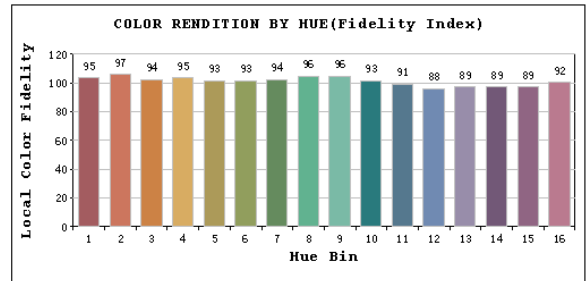
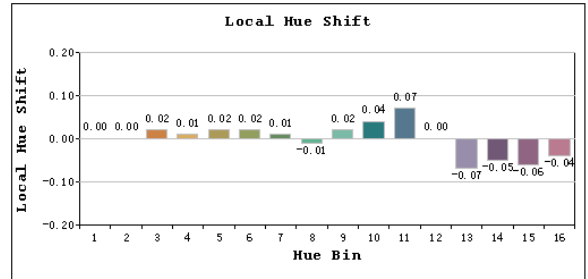
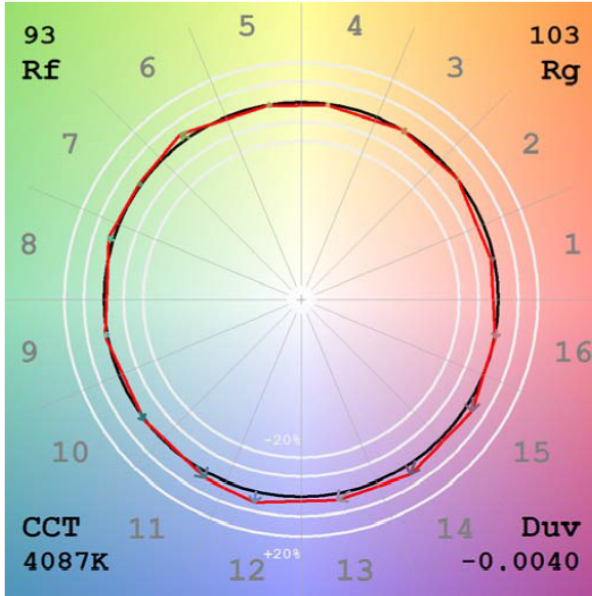
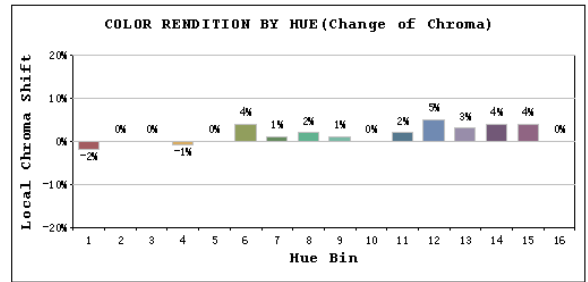
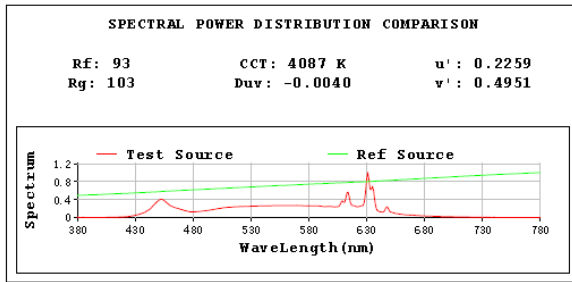
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	97
Frequency (Hz)	60	R2	98	R10	98
CCT (K)	4087	R3	94	R11	93
Duv	-0.0040	R4	96	R12	78
Chromaticity (x, y)	x=0.3741 y=0.3645	R5	97	R13	96
Chromaticity (u', v')	u'=0.2259 v'=0.4951	R6	95	R14	95
Color Rendering Index (CRI)	96.7	R7	98	R15	96
R9	97	R8	99	--	--
Rg	103				
Rf	93				
Rcs,h1%	-2				

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	729.4
Luminous Efficacy (lm/W)	98.04

# Spectral Power Distribution & Chromaticity Diagram





**2.1.5 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-06-24	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	ECLPS4B	5000K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202406210013	120.0	60	0.072	7.38	0.849

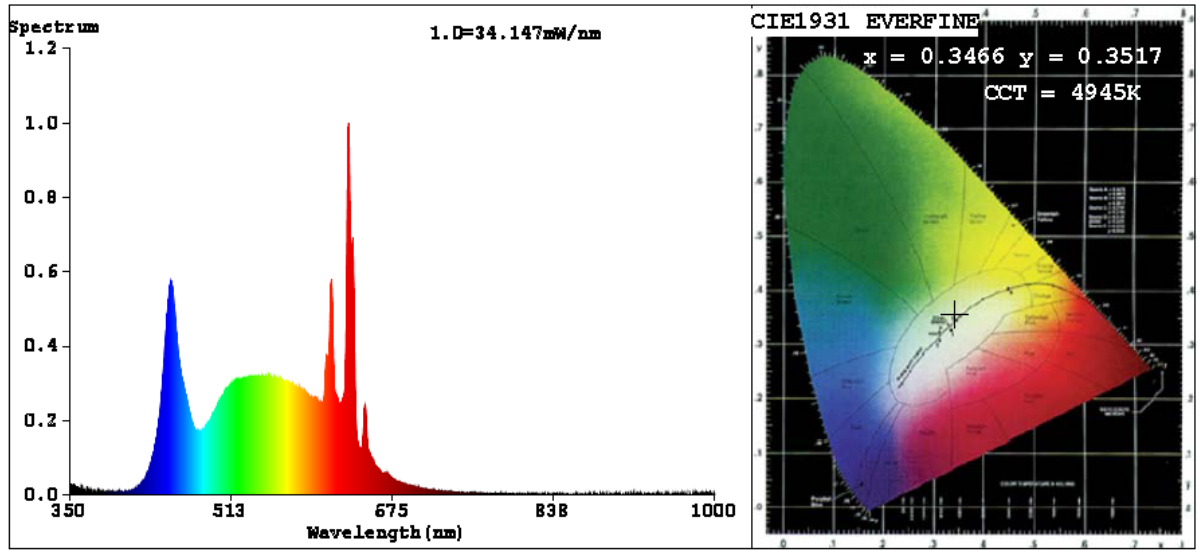
**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

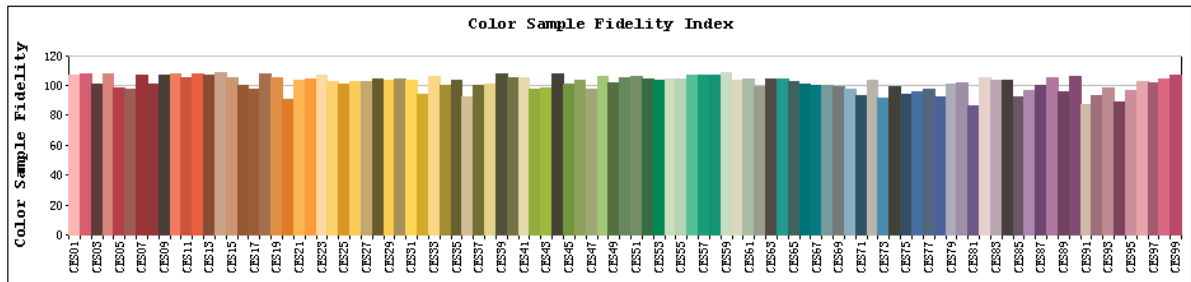
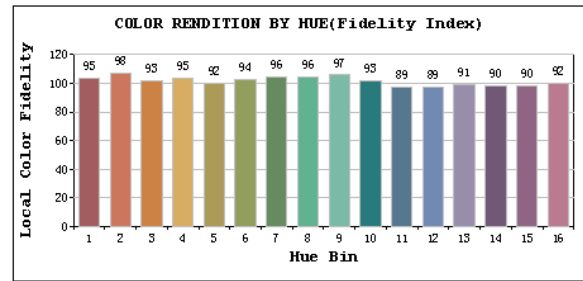
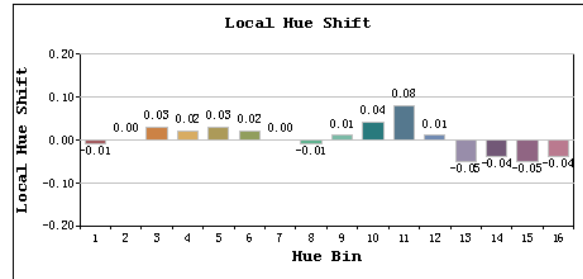
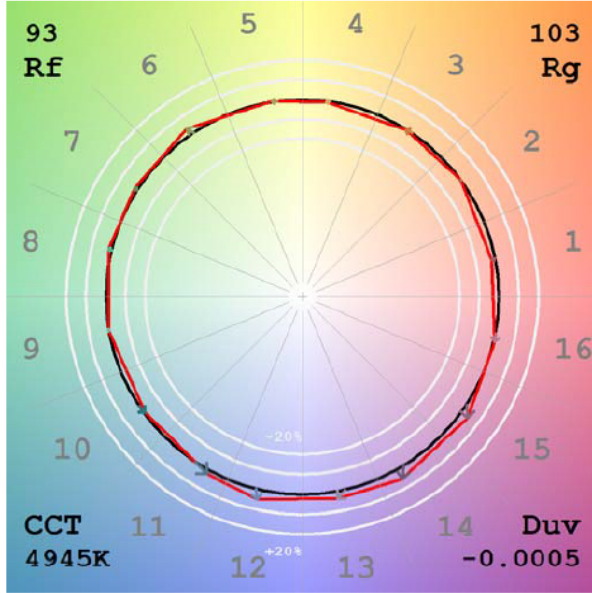
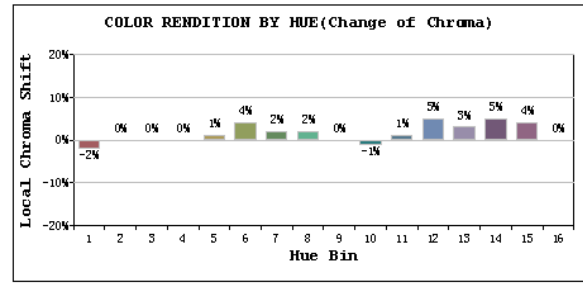
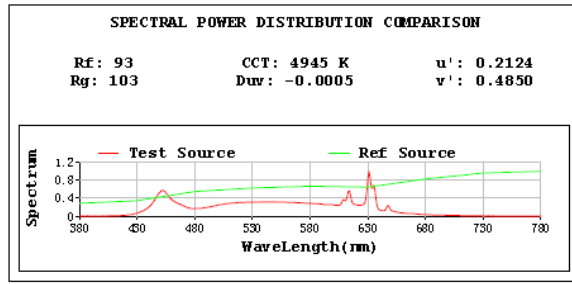
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	97
Frequency (Hz)	60	R2	99	R10	93
CCT (K)	4945	R3	93	R11	95
Duv	-0.0005	R4	99	R12	71
Chromaticity (x, y)	x=0.3466 y=0.3517	R5	98	R13	99
Chromaticity (u', v')	u'=0.2124 v'=0.4850	R6	95	R14	95
Color Rendering Index (CRI)	97.3	R7	100	R15	96
R9	97	R8	99	--	--
Rg	103				
Rf	93				
Rcs,h1%	-2				

**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	751.0
Luminous Efficacy (lm/W)	101.77

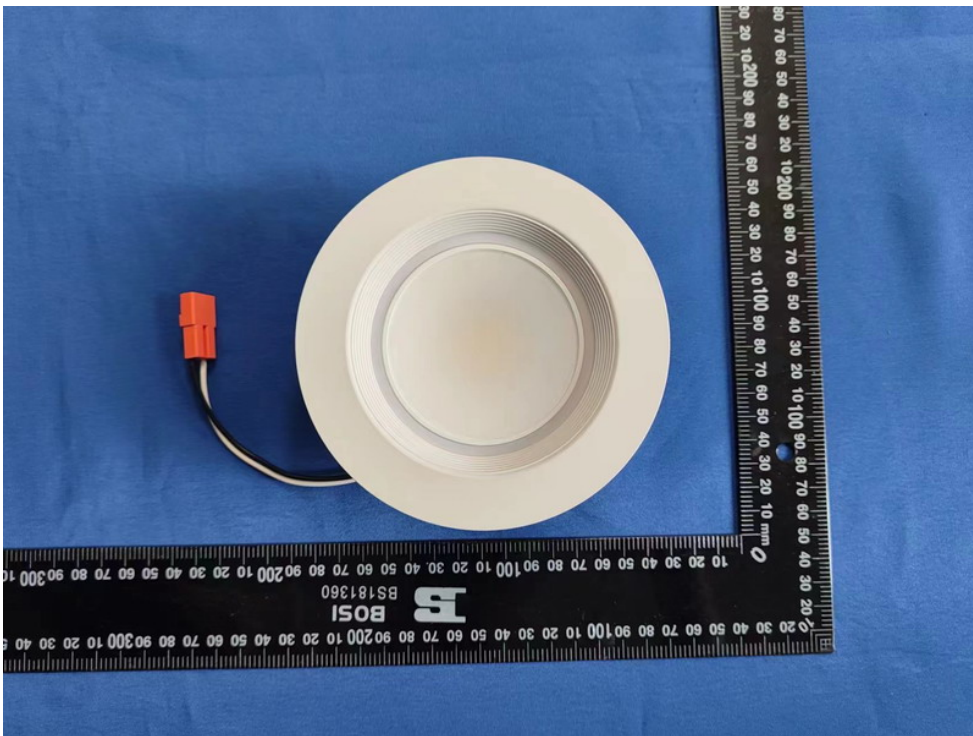
# Spectral Power Distribution & Chromaticity Diagram





Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
ECLPS4B	2700K setting	120	701.5	7.37	95.18
	3000K setting	120	711.7	7.41	96.05
	3500K setting	120	723.7	7.46	97.01
	4000K setting	120	729.4	7.44	98.04
	5000K setting	120	751.0	7.38	101.77

### 3. Product Photo



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