

**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):**  
**WFRX-6BD**

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

**Type of  
Luminaire:** Downlights

**Report Date:** 2024-11-29

**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	11.0W/13.0W/15.0W
Rated Initial Lamp Lumen	1000lm/1250lm/1500lm (mode 5000K)
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>	2024-11-27	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	WFRX-6BD	5000K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411200020	120.0	60	0.107	12.80	0.994

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

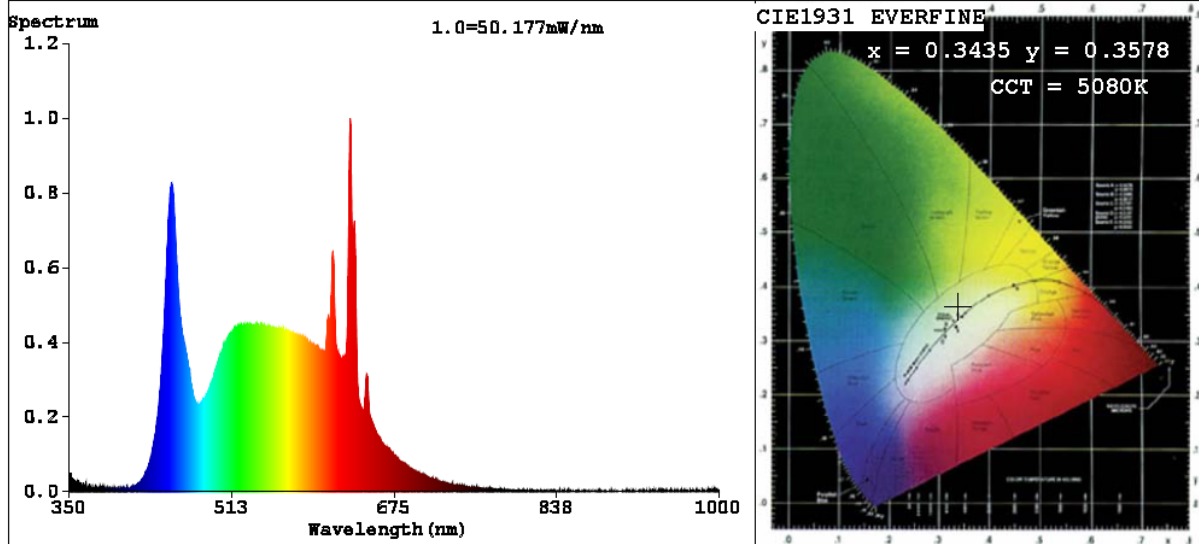
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	74
Frequency (Hz)	60	R2	96	R10	89
CCT (K)	5089	R3	94	R11	95
Duv	0.0037	R4	96	R12	72
Chromaticity (x, y)	x=0.3435 y=0.3578	R5	95	R13	96
Chromaticity (u', v')	u'=0.2080 v'=0.4874	R6	94	R14	96
Color Rendering Index (CRI)	94.7	R7	96	R15	94
R9	74	R8	91	--	--
Rg	100				
Rf	93				
Rcs,h1%	-4				

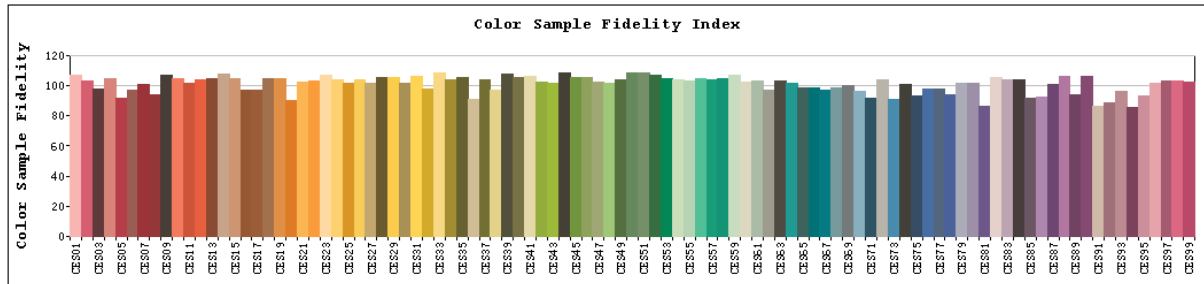
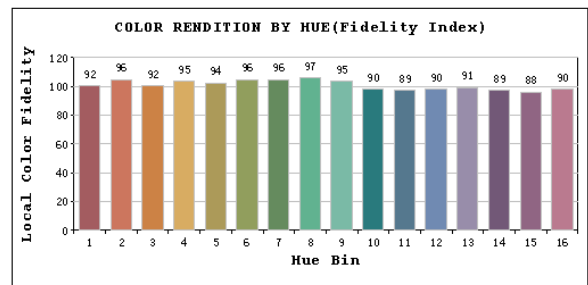
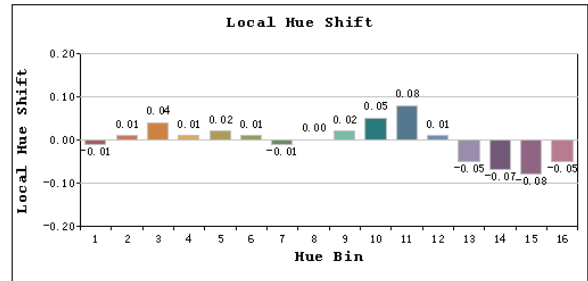
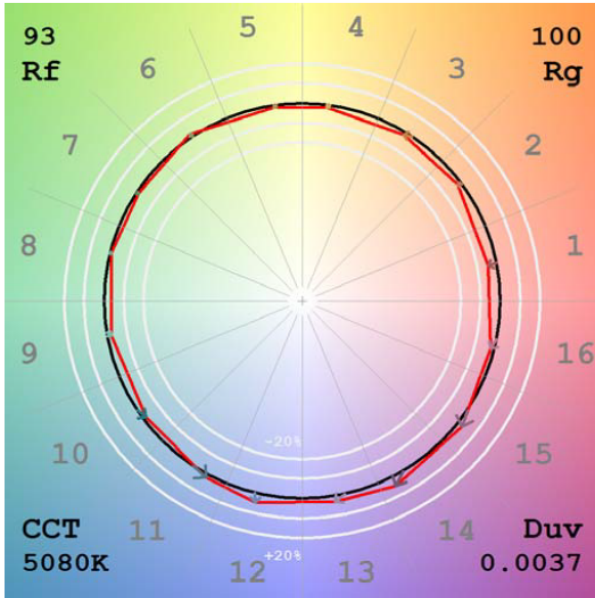
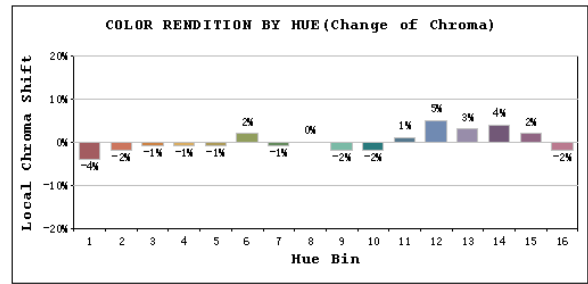
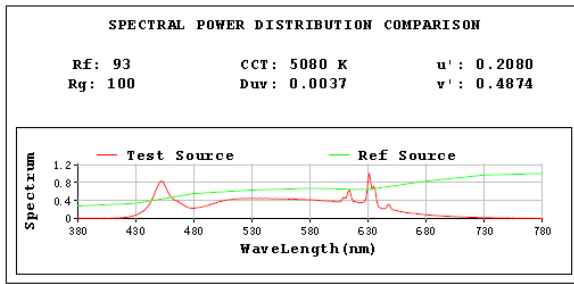
**Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1525.3
Luminous Efficacy (lm/W)	119.16
Beam Angle (°)	111.5
Center Beam Candle Power (cd)	545.7

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1568.0
Luminous Efficacy (lm/W)	116.41

# Spectral Power Distribution & Chromaticity Diagram



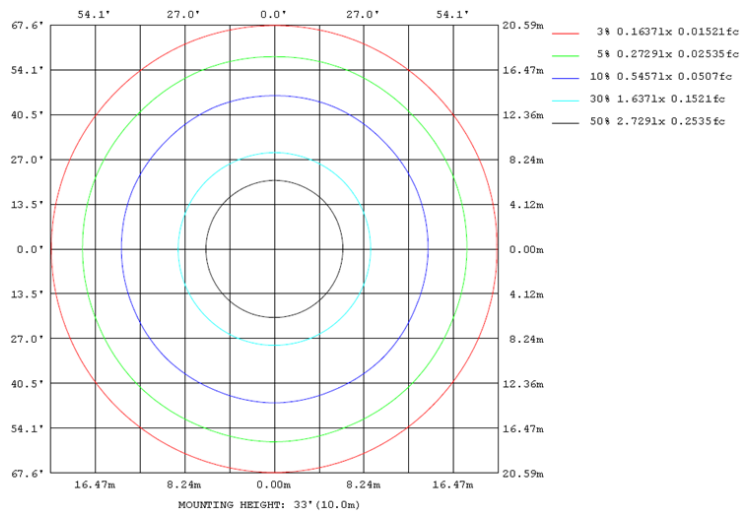
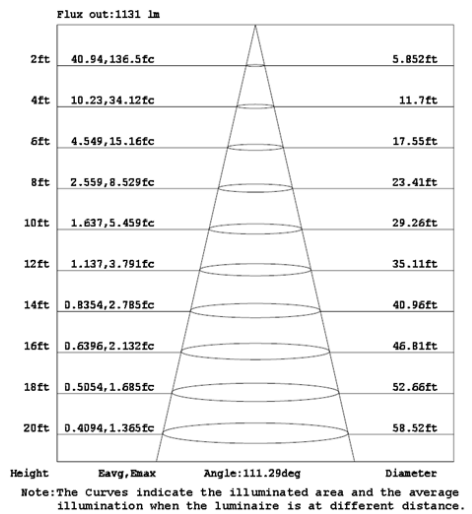
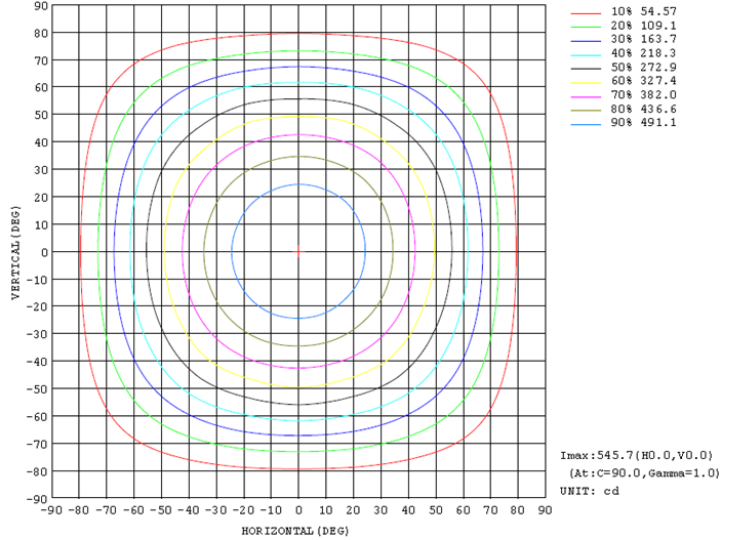
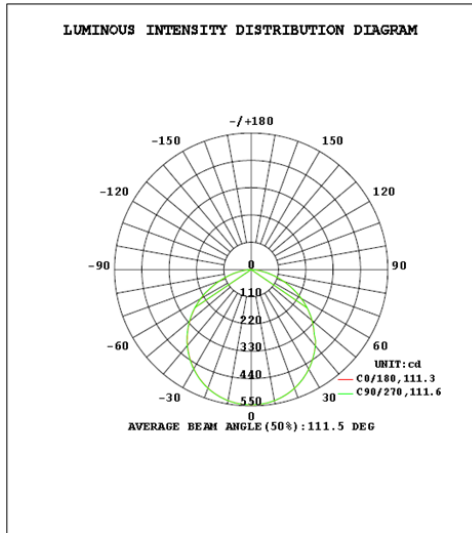


# Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	424.9	27.9%
0-40	696.1	45.6%
0-60	1224.4	80.3%
60-90	300.8	19.7%
70-100	117.3	7.7%
90-120	0.0	0.0%
0-90	1525.3	100.0%
90-180	0.0	0.0%
0-180	1525.3	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	51.7	3.4%	90-100	0.0	0.0%
10-20	148.2	9.7%	100-110	0.0	0.0%
20-30	225.0	14.8%	110-120	0.0	0.0%
30-40	271.2	17.8%	120-130	0.0	0.0%
40-50	279.1	18.3%	130-140	0.0	0.0%
50-60	249.3	16.3%	140-150	0.0	0.0%
60-70	183.5	12.0%	150-160	0.0	0.0%
70-80	97.5	6.4%	160-170	0.0	0.0%
80-90	19.9	1.3%	170-180	0.0	0.0%

## Photometric Data





## 2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-11-27	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	WFRX-6BD	2700K	

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202411200020	120.0	60	0.107	12.80	0.994

### Chromaticity Measurement - Sphere-Spectroradiometer Method:

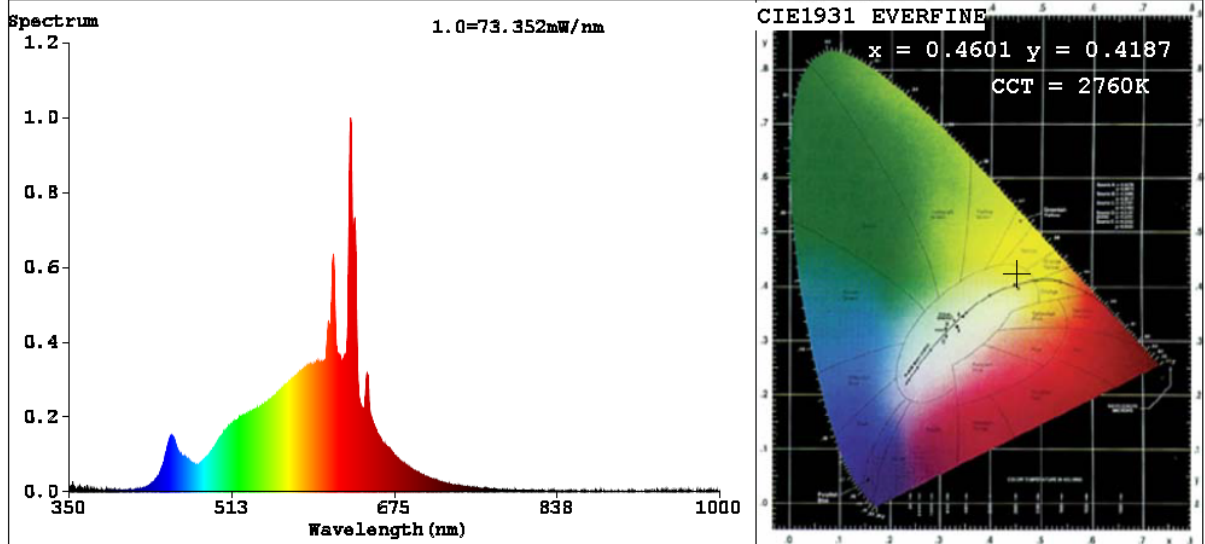
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	93	R9	53
Frequency (Hz)	60	R2	96	R10	90
CCT (K)	2760	R3	98	R11	97
Duv	0.0029	R4	94	R12	83
Chromaticity (x, y)	x=0.4601 y=0.4187	R5	93	R13	94
Chromaticity (u', v')	u'=0.2590 v'=0.5304	R6	97	R14	98
Color Rendering Index (CRI)	92.9	R7	91	R15	87
R9	53	R8	80	--	--
Rg	97				
Rf	91				
Rcs,h1%	-7				

### Photometric Measurement – Goniophotometer Method:

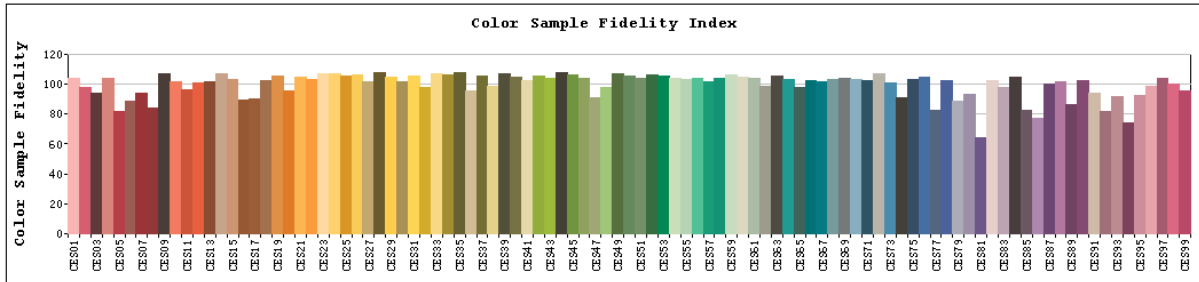
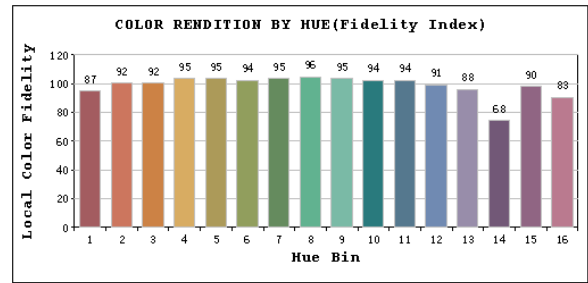
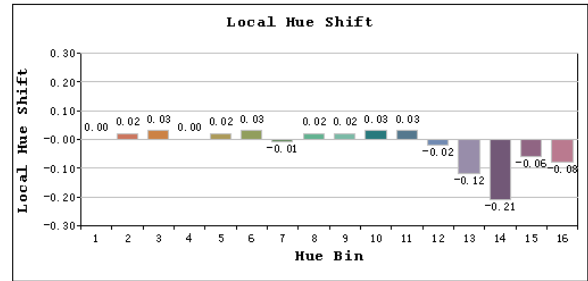
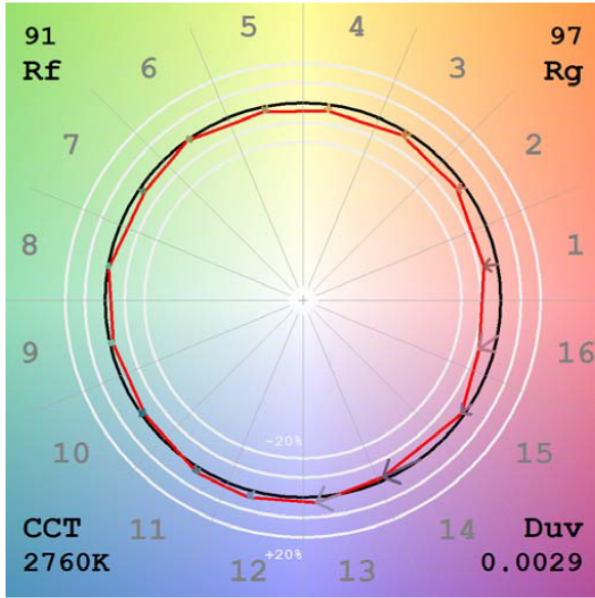
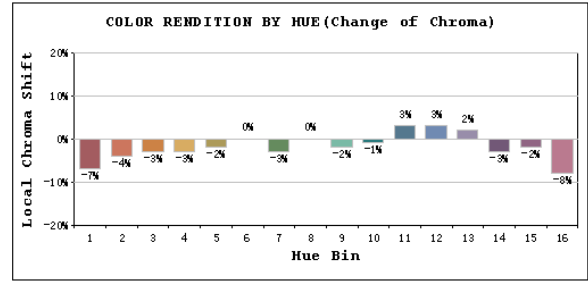
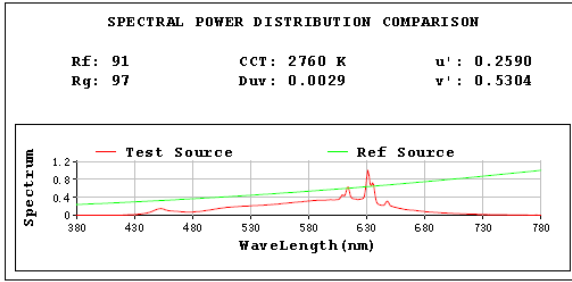
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1456.4
Luminous Efficacy (lm/W)	113.78

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1496.0
Luminous Efficacy (lm/W)	111.23

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.3 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-11-27	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	WFRX-6BD	3000K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202411200020	120.0	60	0.106	12.70	0.994

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

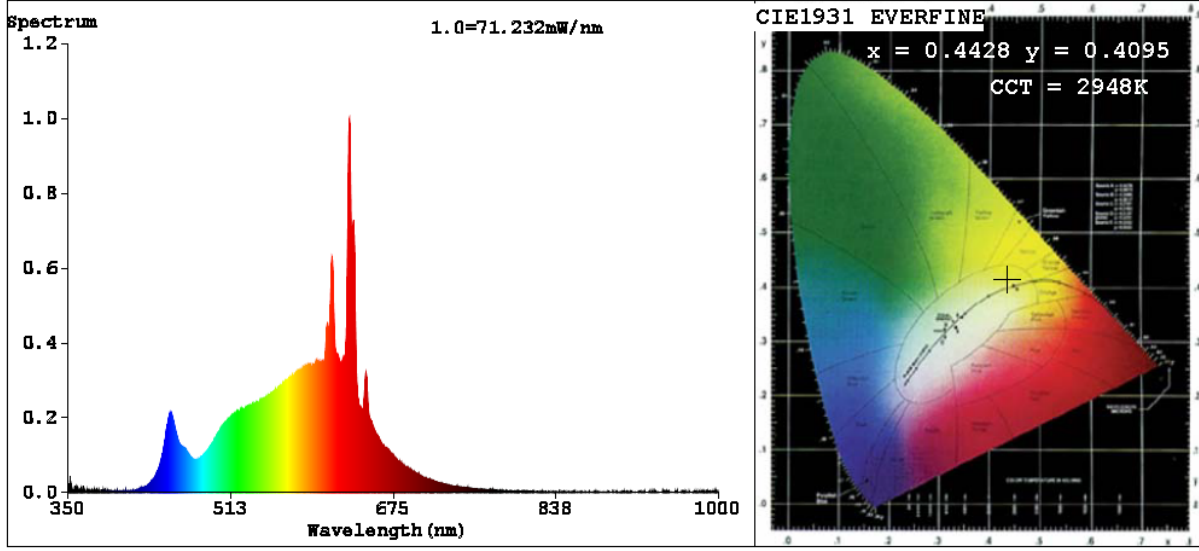
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	95	R9	60
Frequency (Hz)	60	R2	97	R10	92
CCT (K)	2948	R3	98	R11	98
Duv	0.0013	R4	96	R12	83
Chromaticity (x, y)	x=0.4428 y=0.4095	R5	95	R13	96
Chromaticity (u', v')	u'=0.2520 v'=0.5243	R6	97	R14	98
Color Rendering Index (CRI)	94.2	R7	92	R15	90
R9	60	R8	83	--	--
Rg	99				
Rf	92				
Rcs,h1%	-6				

**Photometric Measurement – Goniophotometer Method:**

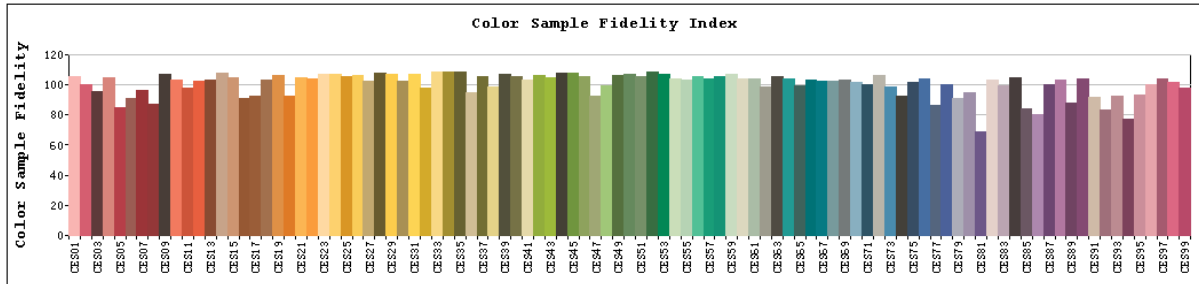
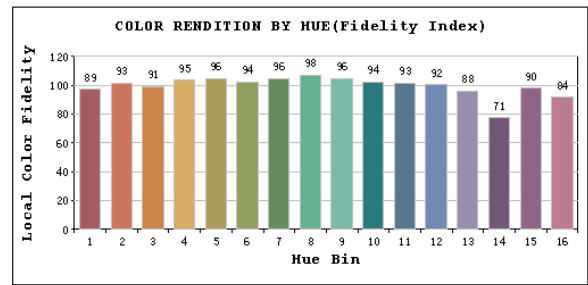
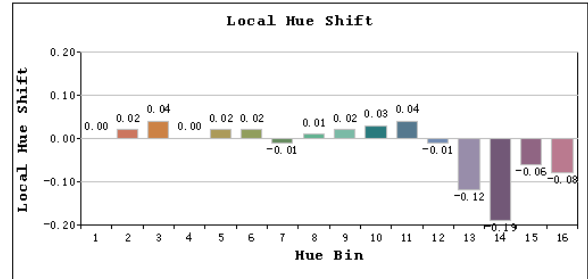
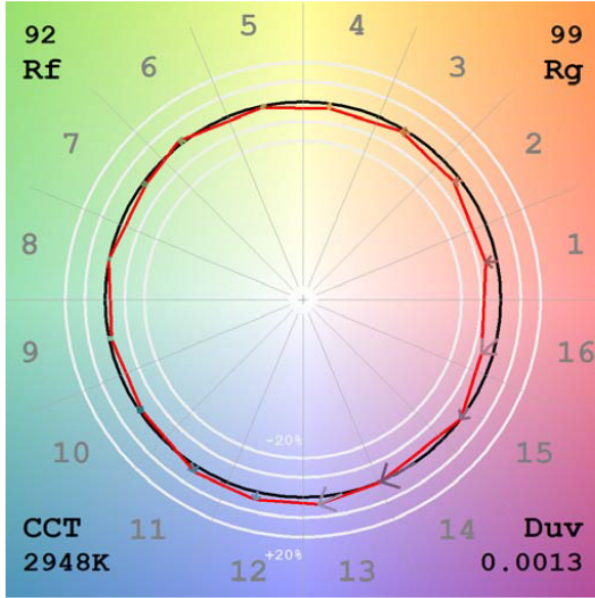
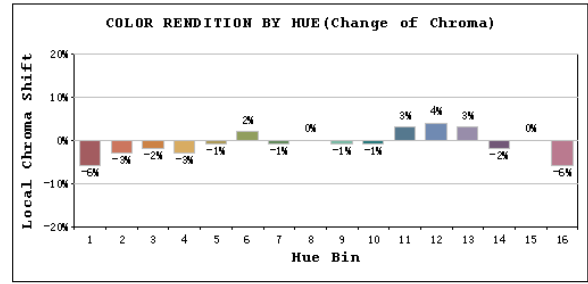
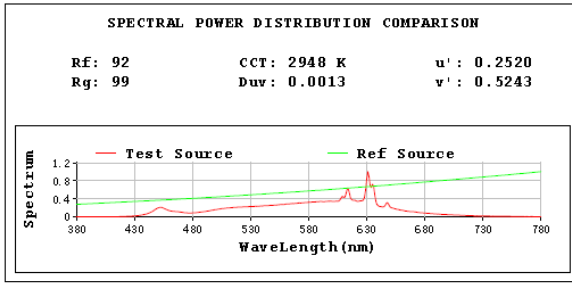
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1469.8
Luminous Efficacy (lm/W)	115.74

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1511.0
Luminous Efficacy (lm/W)	113.10

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.4 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-11-27	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	WFRX-6BD	3500K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202411200020	120.0	60	0.105	12.60	0.994

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

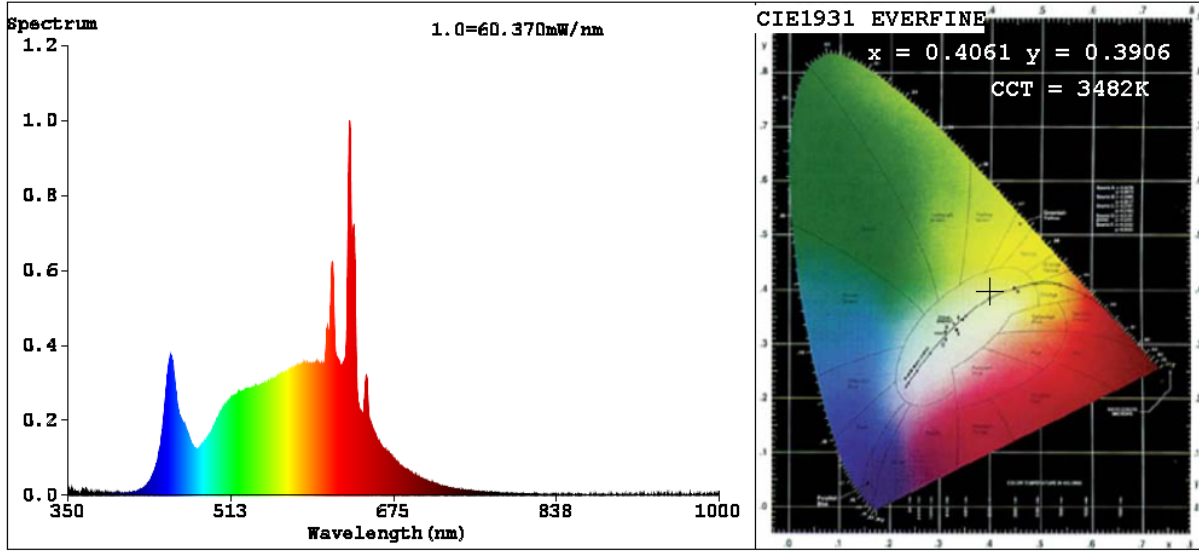
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	72
Frequency (Hz)	60	R2	98	R10	94
CCT (K)	3482	R3	97	R11	97
Duv	-0.0002	R4	97	R12	79
Chromaticity (x, y)	x=0.4061 y=0.3906	R5	97	R13	98
Chromaticity (u', v')	u'=0.2363 v'=0.5113	R6	96	R14	97
Color Rendering Index (CRI)	95.8	R7	94	R15	94
R9	72	R8	89	--	--
Rg	100				
Rf	93				
Rcs,h1%	-4				

**Photometric Measurement – Goniophotometer Method:**

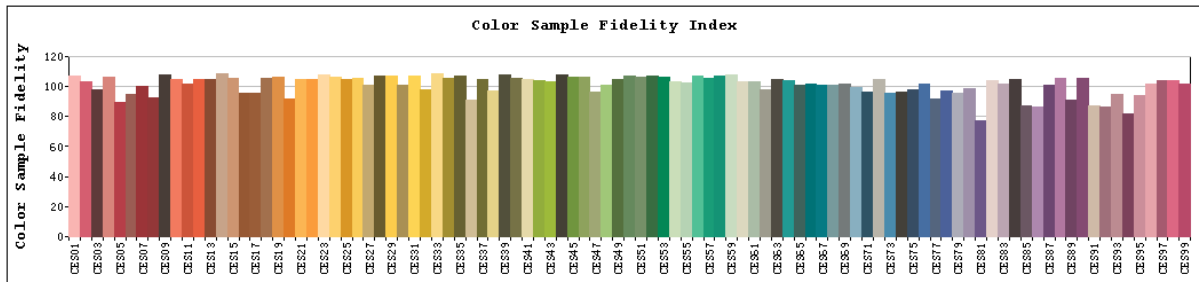
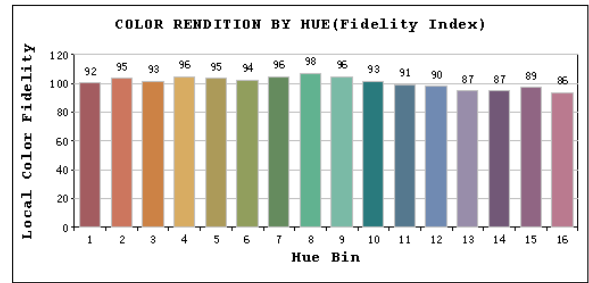
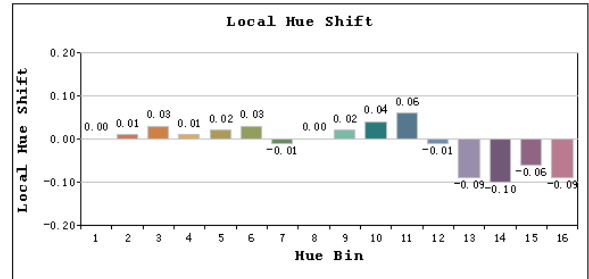
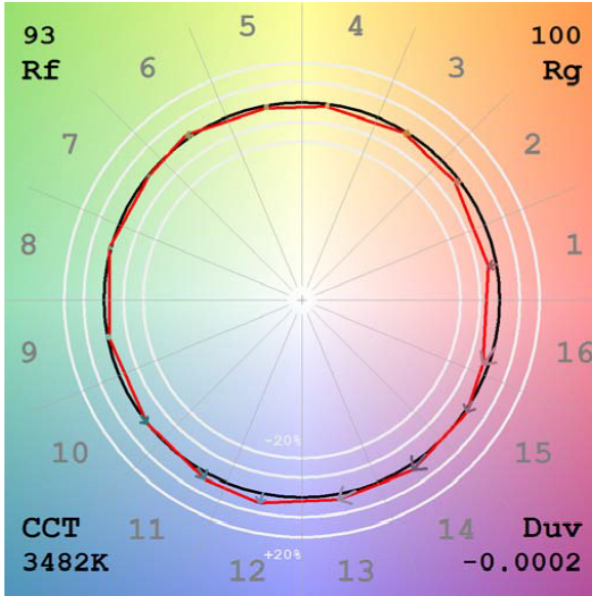
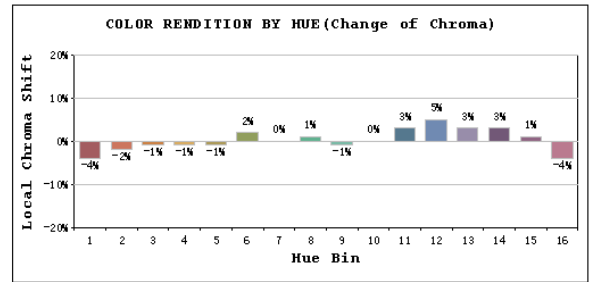
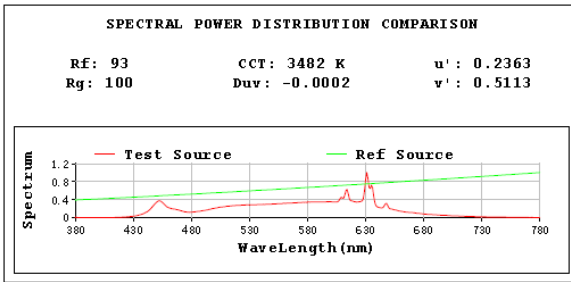
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1505.9
Luminous Efficacy (lm/W)	119.52

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1542.0
Luminous Efficacy (lm/W)	116.29

# Spectral Power Distribution & Chromaticity Diagram



# TM30



**2.1.5 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-11-27	<b>Test Ambient:</b>	25.1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	WFRX-6BD	4000K	

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202411200020	120.0	60	0.106	12.60	0.994

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

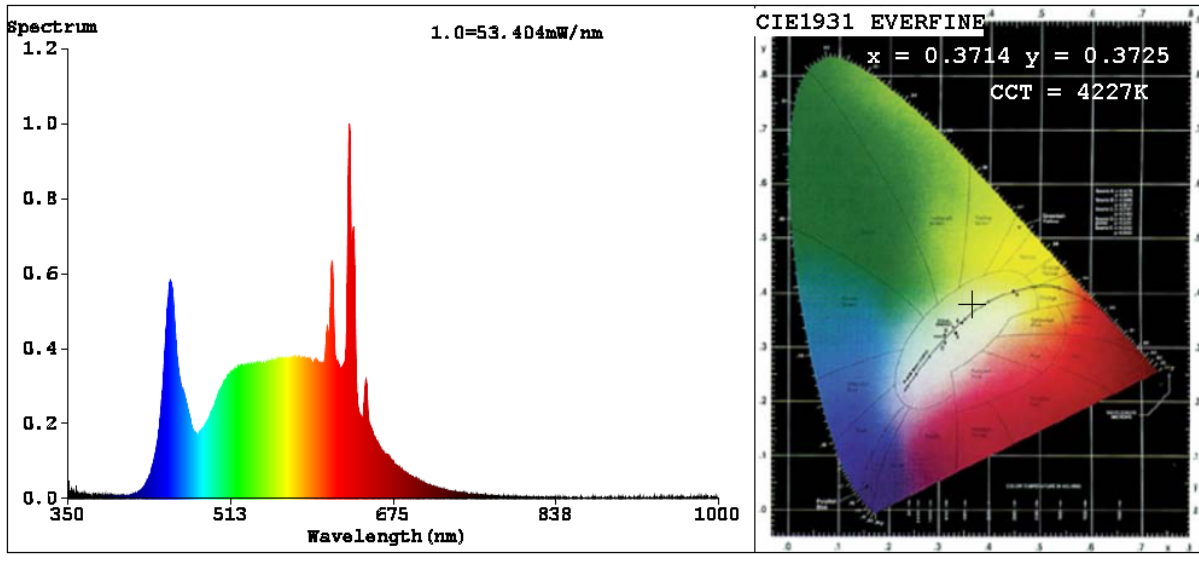
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	78
Frequency (Hz)	60	R2	98	R10	92
CCT (K)	4227	R3	96	R11	97
Duv	0.0008	R4	97	R12	73
Chromaticity (x, y)	x=0.3714 y=0.3725	R5	96	R13	98
Chromaticity (u', v')	u'=0.2208 v'=0.4984	R6	95	R14	97
Color Rendering Index (CRI)	96.0	R7	96	R15	95
R9	78	R8	92	--	--
Rg	100				
Rf	93				
Rcs,h1%	-4				

**Photometric Measurement – Goniophotometer Method:**

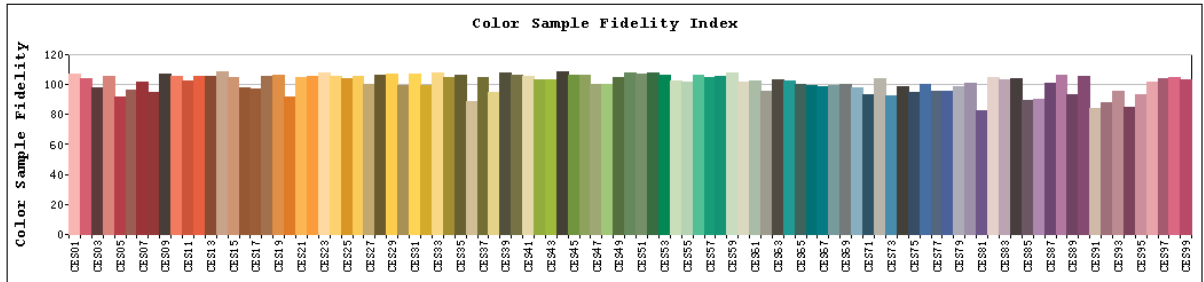
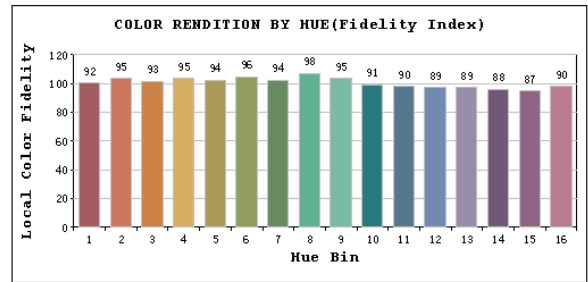
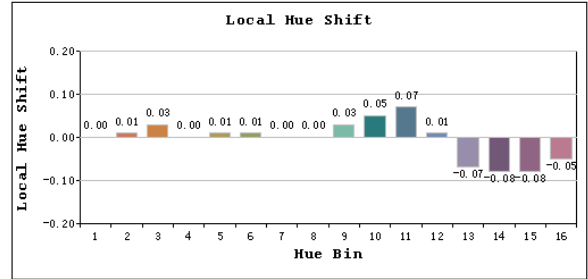
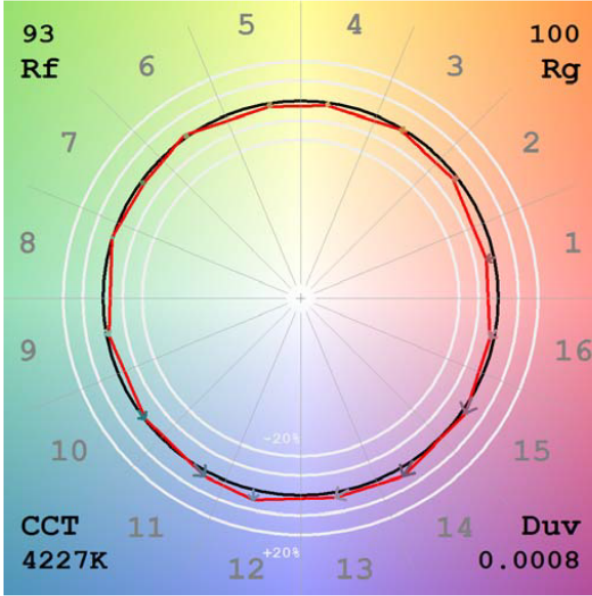
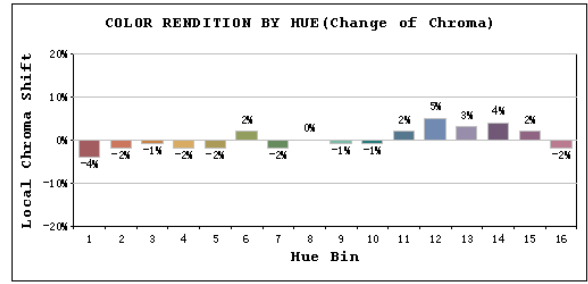
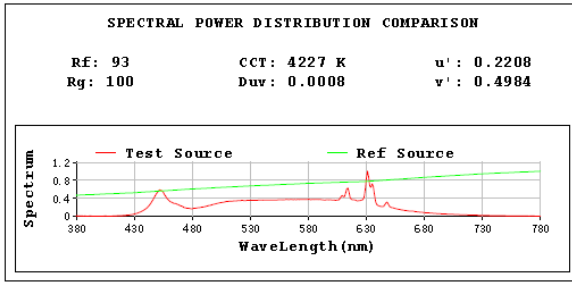
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1523.3
Luminous Efficacy (lm/W)	120.90

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1563.0
Luminous Efficacy (lm/W)	117.78

# Spectral Power Distribution & Chromaticity Diagram

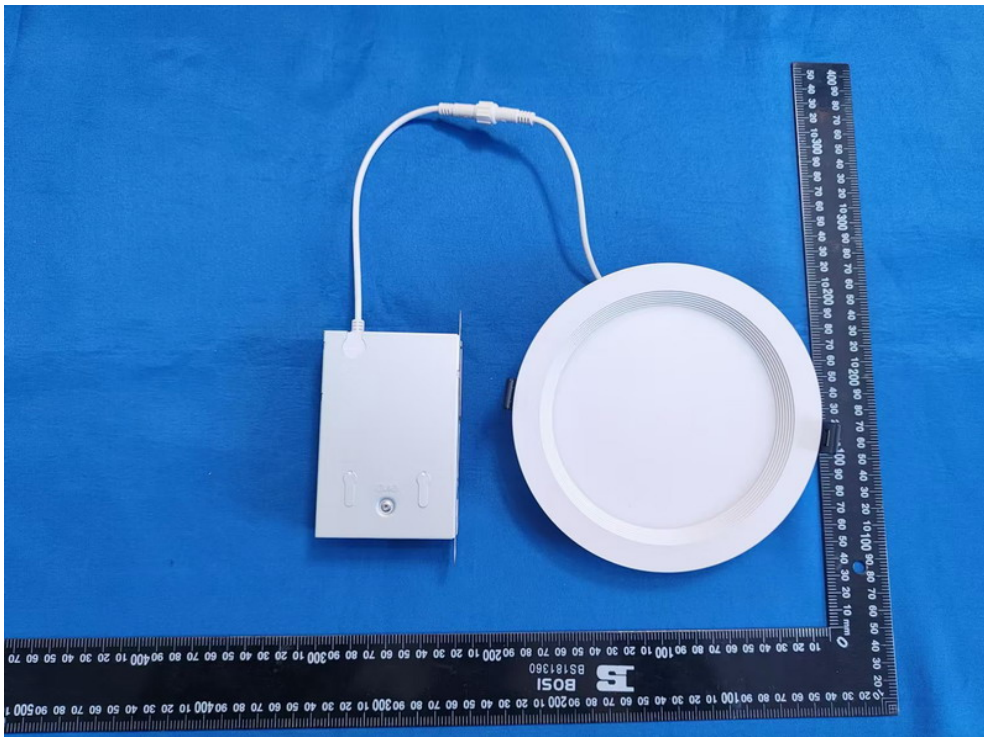


# TM30



Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
WFRX-6BD	11W-5000K setting	120	1076.2	9.44	114.01
		277	1126.0	10.36	108.69
	13W-5000K setting	120	1311.3	11.20	117.08
		277	1371.0	12.40	110.55
	15W-2700K setting	120	1456.4	12.80	113.78
		277	1496.0	13.45	111.23
	15W-3000K setting	120	1469.8	12.70	115.74
		277	1511.0	13.36	113.10
	15W-3500K setting	120	1505.9	12.60	119.52
		277	1542.0	13.26	116.29
	15W-4000K setting	120	1523.3	12.60	120.90
		277	1563.0	13.27	117.78
	15W-5000K setting	120	1525.3	12.80	119.16
		277	1568.0	13.47	116.41

### 3. Product Photo



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