

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): FGIMBAL6

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

**Type of
Luminaire:** Downlights

Report Date: 2024-07-05

Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	14.0W
Rated Initial Lamp Lumen	1300lm (mode5000K)
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	2024-07-04	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	FGIMBAL6	5000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020004	120.0	60	0.114	13.60	0.989

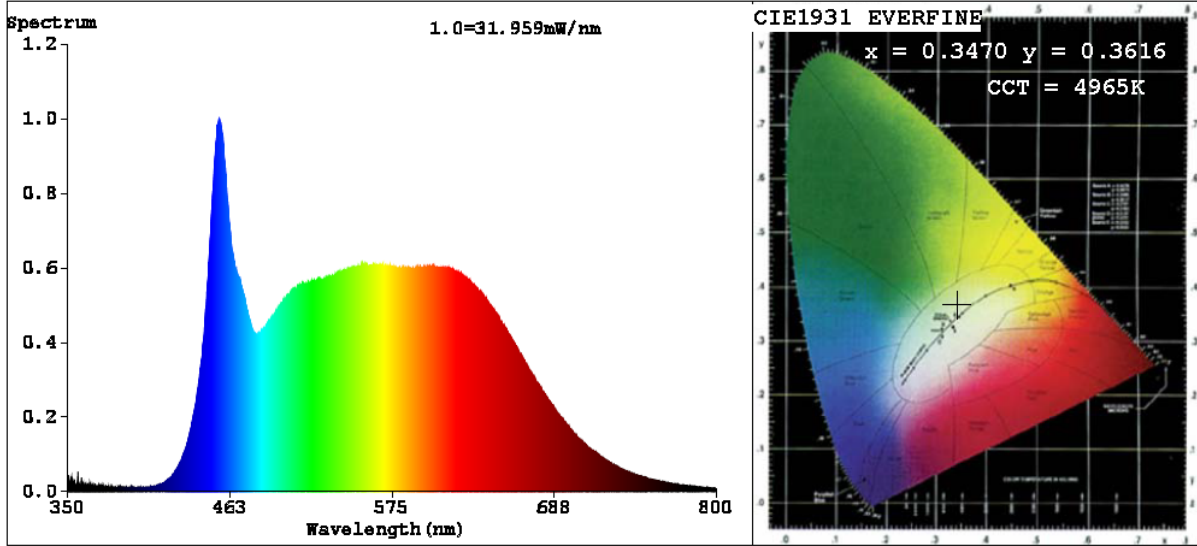
Chromaticity Measurement - Sphere-Spectroradiometer Method:

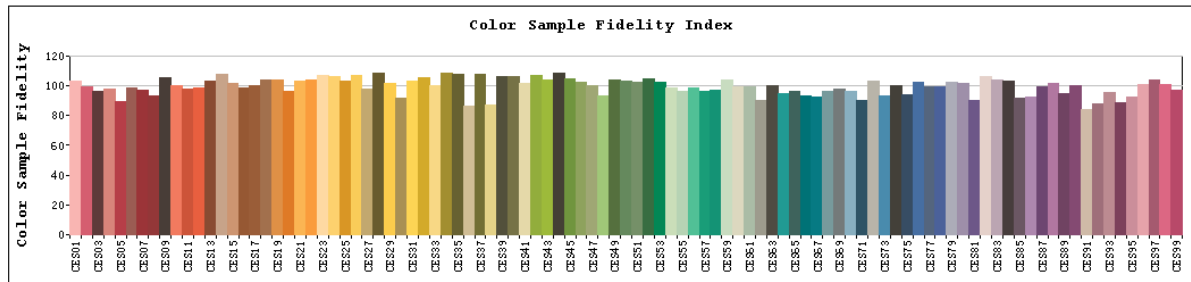
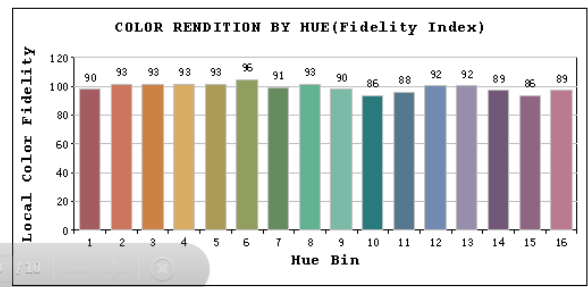
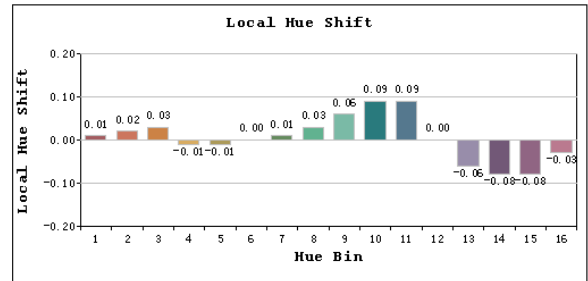
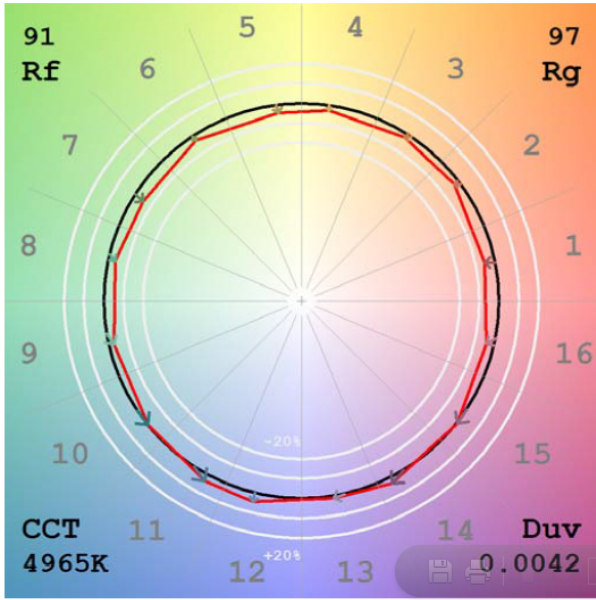
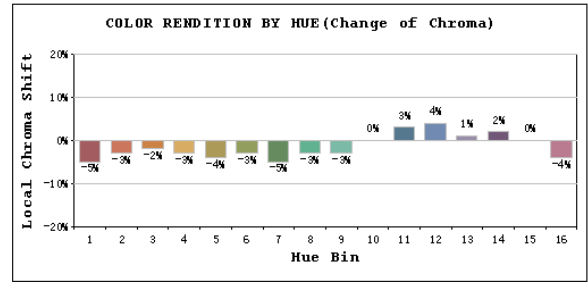
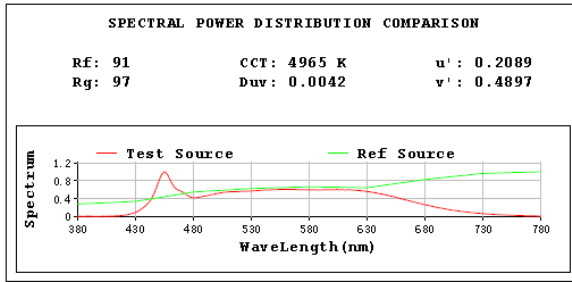
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	93	R9	66
Frequency (Hz)	60	R2	98	R10	94
CCT (K)	4965	R3	98	R11	90
Duv	0.0042	R4	88	R12	68
Chromaticity (x, y)	x=0.3470 y=0.3616	R5	91	R13	95
Chromaticity (u', v')	u'=0.2089 v'=0.4897	R6	95	R14	99
Color Rendering Index (CRI)	92.5	R7	91	R15	89
R9	66	R8	85	--	--
Rg	97				
Rf	91				
Rcs,h1%	-5				

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1328.7
Luminous Efficacy (lm/W)	97.70
Beam Angle (°)	36.1
Center Beam Candle Power (cd)	1992.0

Spectral Power Distribution & Chromaticity Diagram



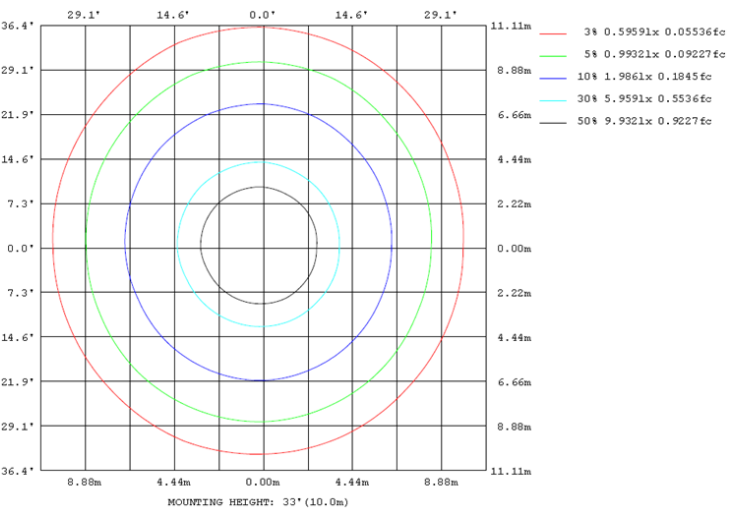
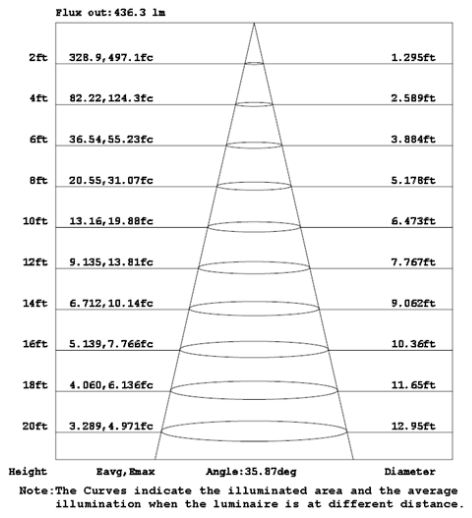
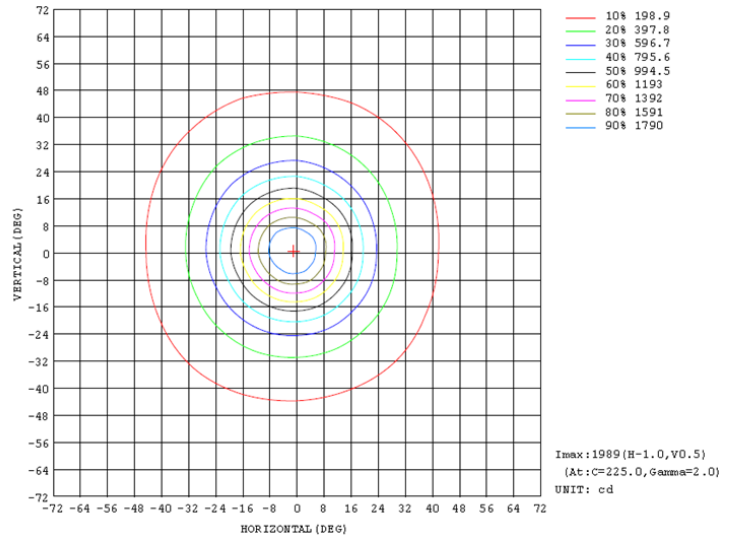
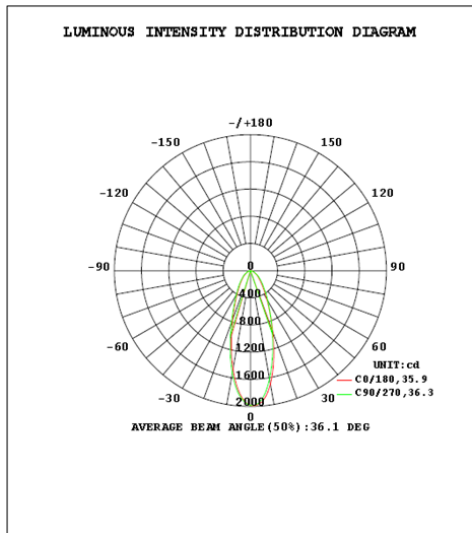


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	788.2	59.3%
0-40	998.5	75.1%
0-60	1253.2	94.3%
60-90	75.5	5.7%
70-100	17.4	1.3%
90-120	0.0	0.0%
0-90	1328.7	100.0%
90-180	0.0	0.0%
0-180	1328.7	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	169.6	12.8%	90-100	0.0	0.0%
10-20	333.1	25.1%	100-110	0.0	0.0%
20-30	285.6	21.5%	110-120	0.0	0.0%
30-40	210.3	15.8%	120-130	0.0	0.0%
40-50	151.3	11.4%	130-140	0.0	0.0%
50-60	103.4	7.8%	140-150	0.0	0.0%
60-70	58.1	4.4%	150-160	0.0	0.0%
70-80	15.1	1.1%	160-170	0.0	0.0%
80-90	2.3	0.2%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-04	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	FGIMBAL6	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020004	120.0	60	0.110	13.10	0.988

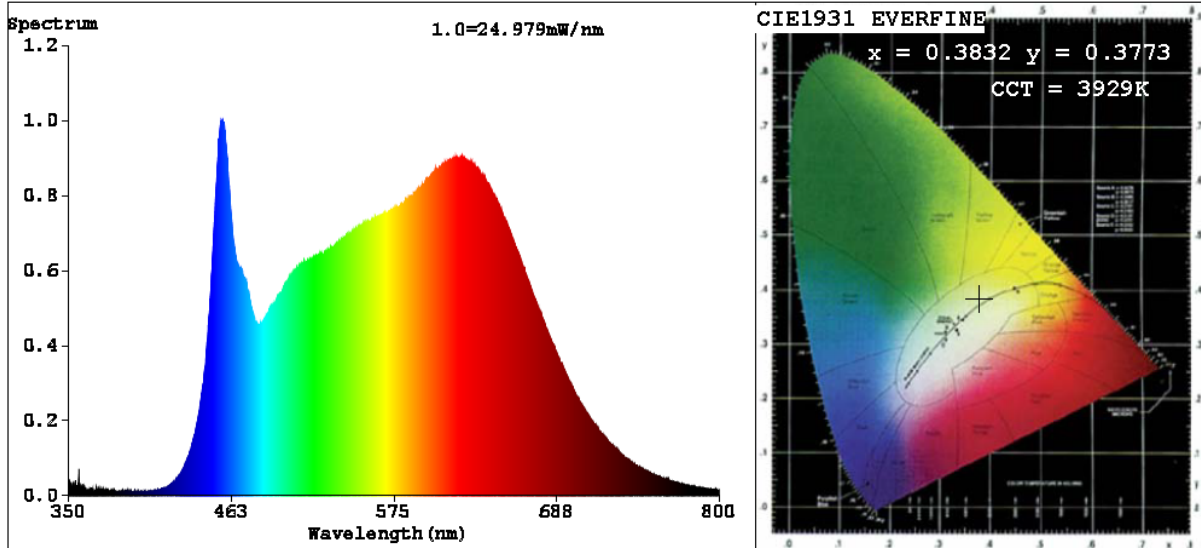
Chromaticity Measurement - Sphere-Spectroradiometer Method:

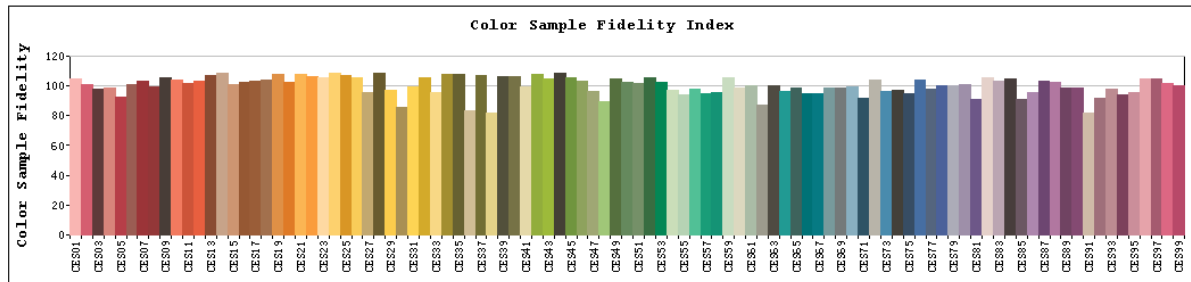
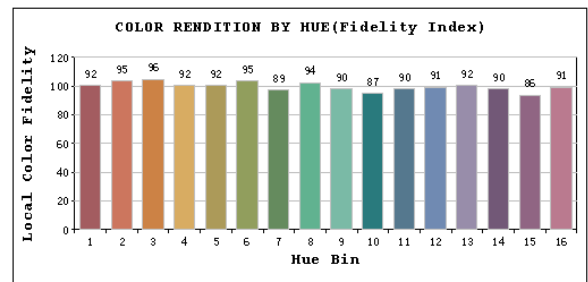
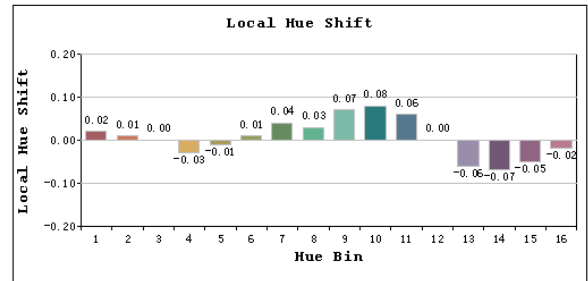
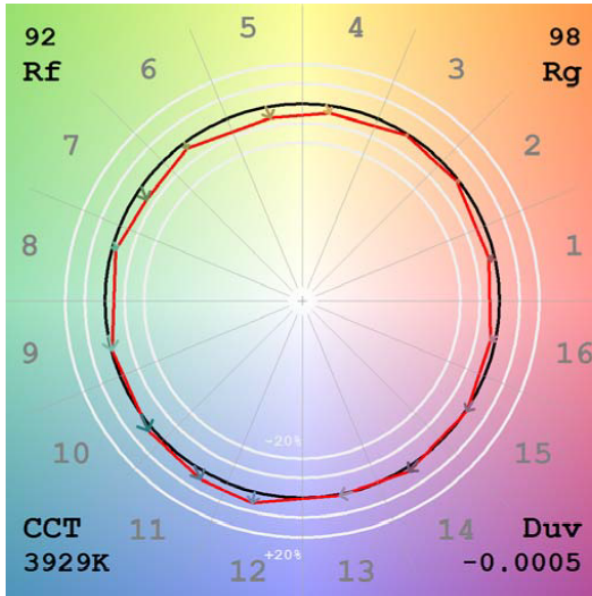
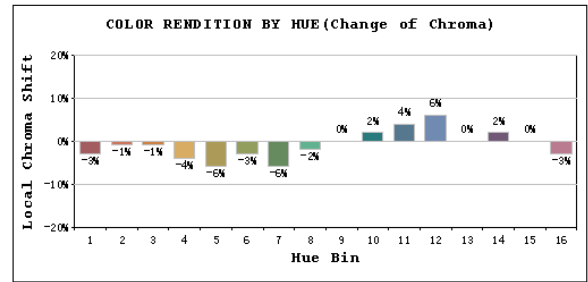
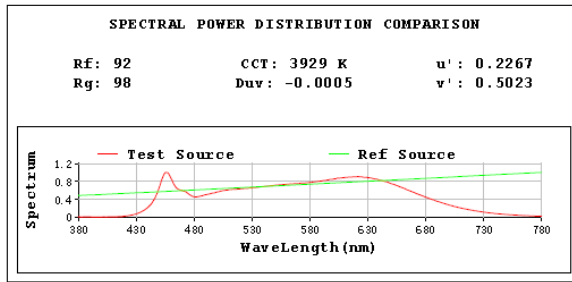
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	83
Frequency (Hz)	60	R2	98	R10	97
CCT (K)	3929	R3	97	R11	97
Duv	-0.0005	R4	94	R12	76
Chromaticity (x, y)	x=0.3832 y=0.3773	R5	96	R13	99
Chromaticity (u', v')	u'=0.2267 v'=0.5023	R6	95	R14	99
Color Rendering Index (CRI)	95.1	R7	92	R15	95
R9	83	R8	90	--	--
Rg	98				
Rf	92				
Rcs,h1%	-3				

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1305.8
Luminous Efficacy (lm/W)	99.68

Spectral Power Distribution & Chromaticity Diagram





2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-04	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	FGIMBAL6	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020004	120.0	60	0.109	12.90	0.987

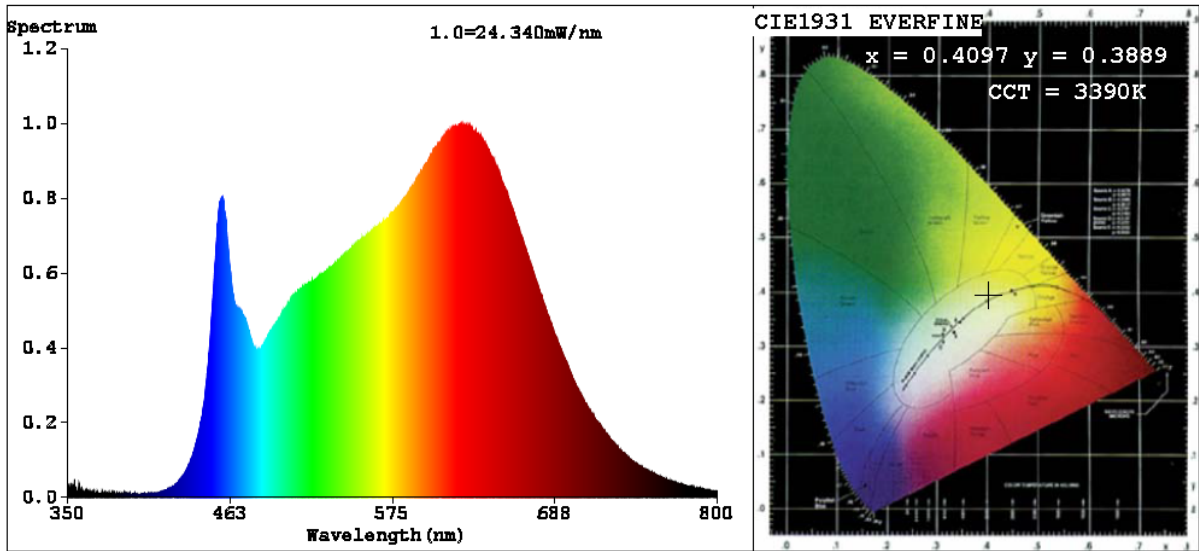
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	83
Frequency (Hz)	60	R2	97	R10	96
CCT (K)	3390	R3	97	R11	99
Duv	-0.0017	R4	96	R12	80
Chromaticity (x, y)	x=0.4097 y=0.3889	R5	97	R13	98
Chromaticity (u', v')	u'=0.2393 v'=0.5112	R6	94	R14	99
Color Rendering Index (CRI)	95.3	R7	93	R15	97
R9	83	R8	91	--	--
Rg	99				
Rf	92				
Rcs,h1%	-3				

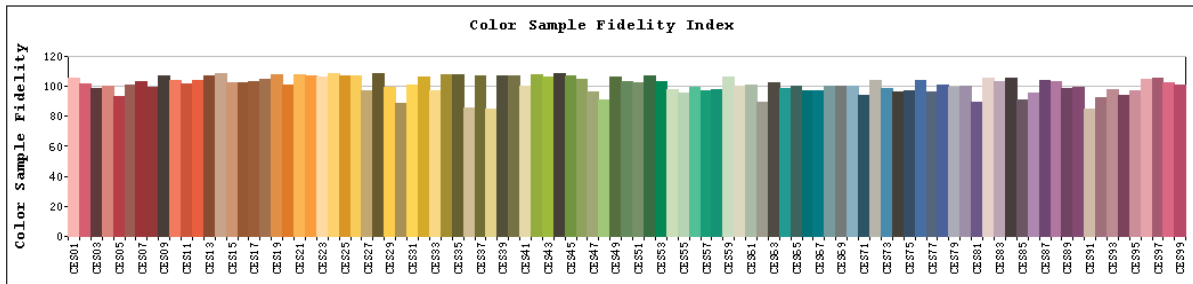
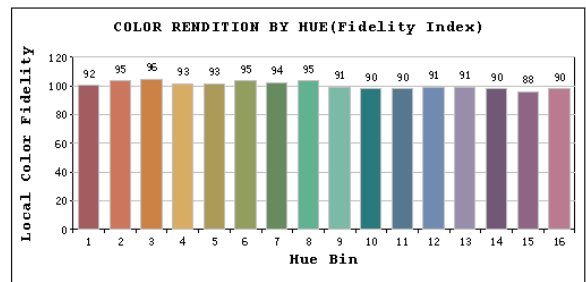
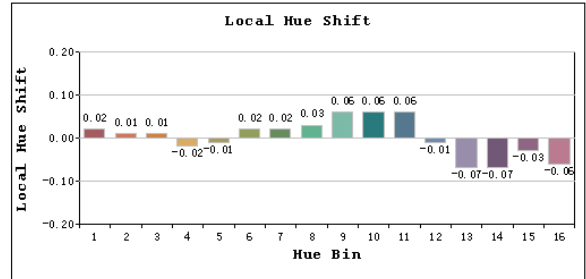
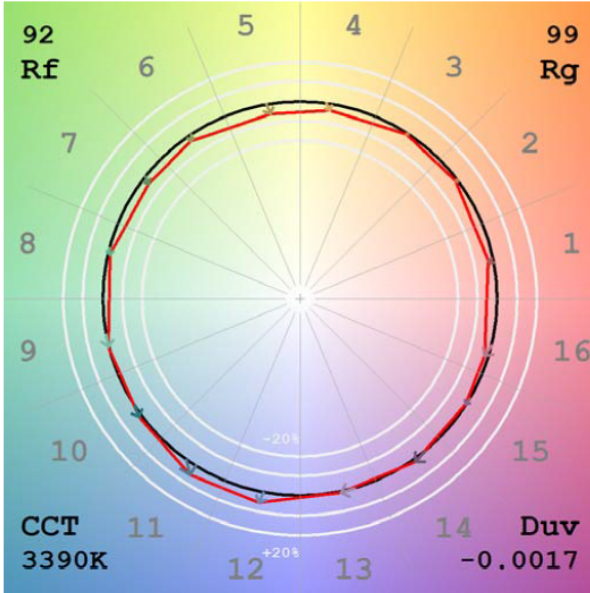
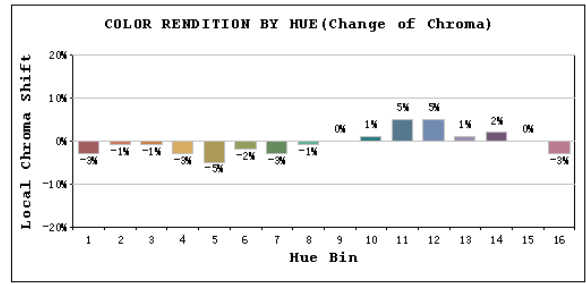
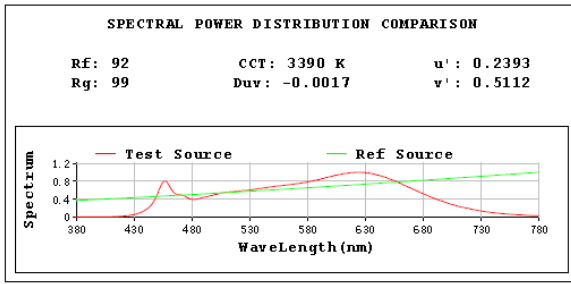
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1261.0
Luminous Efficacy (lm/W)	97.75

Spectral Power Distribution & Chromaticity Diagram



TM30



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-04	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	FGIMBAL6	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020004	120.0	60	0.111	13.10	0.988

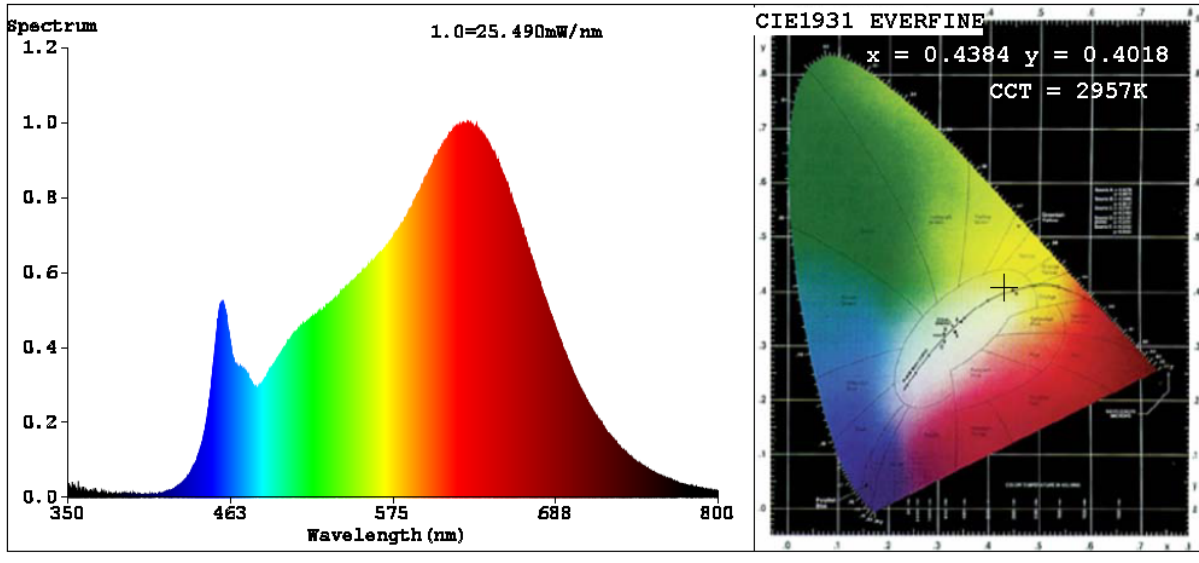
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	99	R9	78
Frequency (Hz)	60	R2	98	R10	97
CCT (K)	2957	R3	97	R11	99
Duv	-0.0011	R4	97	R12	84
Chromaticity (x, y)	x=0.4384 y=0.4018	R5	98	R13	99
Chromaticity (u', v')	u'=0.2525 v'=0.5207	R6	94	R14	99
Color Rendering Index (CRI)	95.5	R7	92	R15	96
R9	78	R8	89	--	--
Rg	99				
Rf	93				
Rcs,h1%	-3				

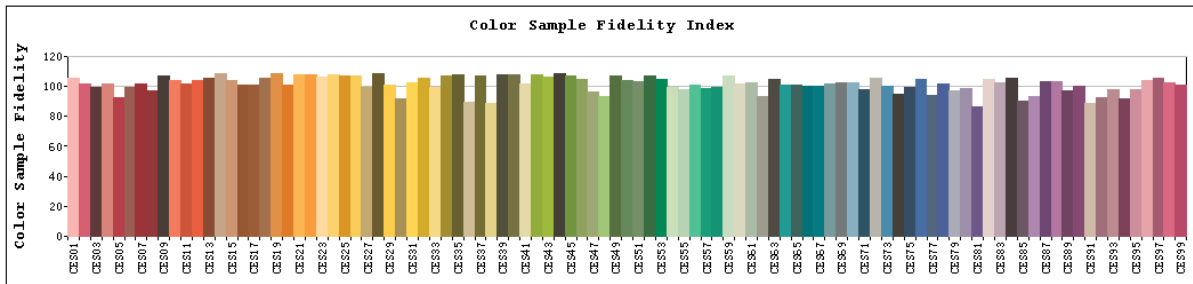
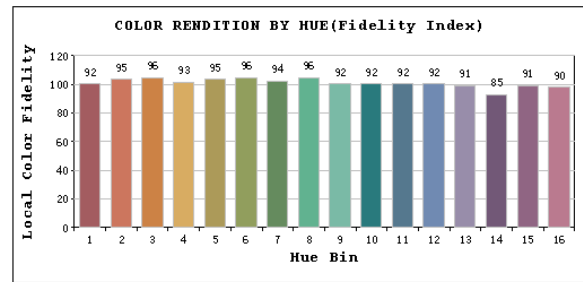
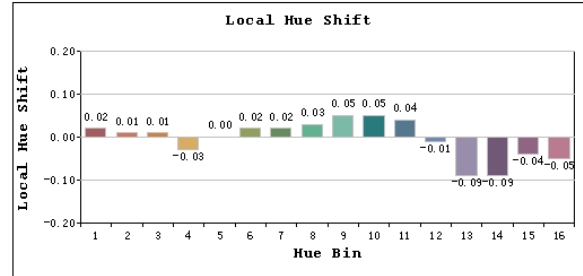
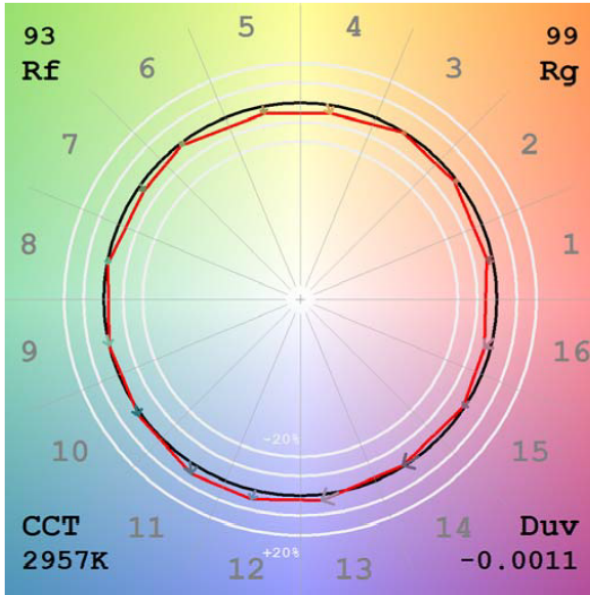
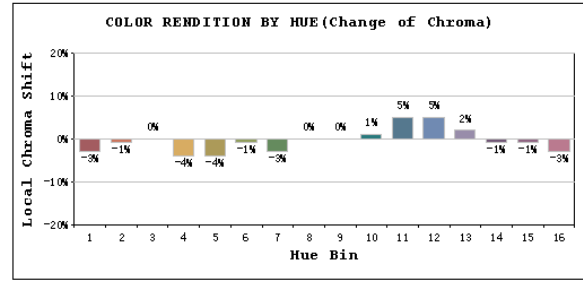
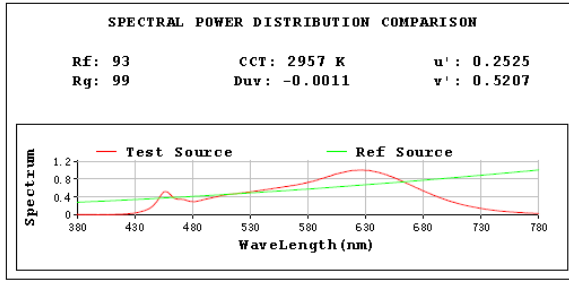
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1191.5
Luminous Efficacy (lm/W)	90.95

Spectral Power Distribution & Chromaticity Diagram



TM30



2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2024-07-04	Test Ambient:	25.1 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	FGIMBAL6	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202407020004	120.0	60	0.112	13.20	0.988

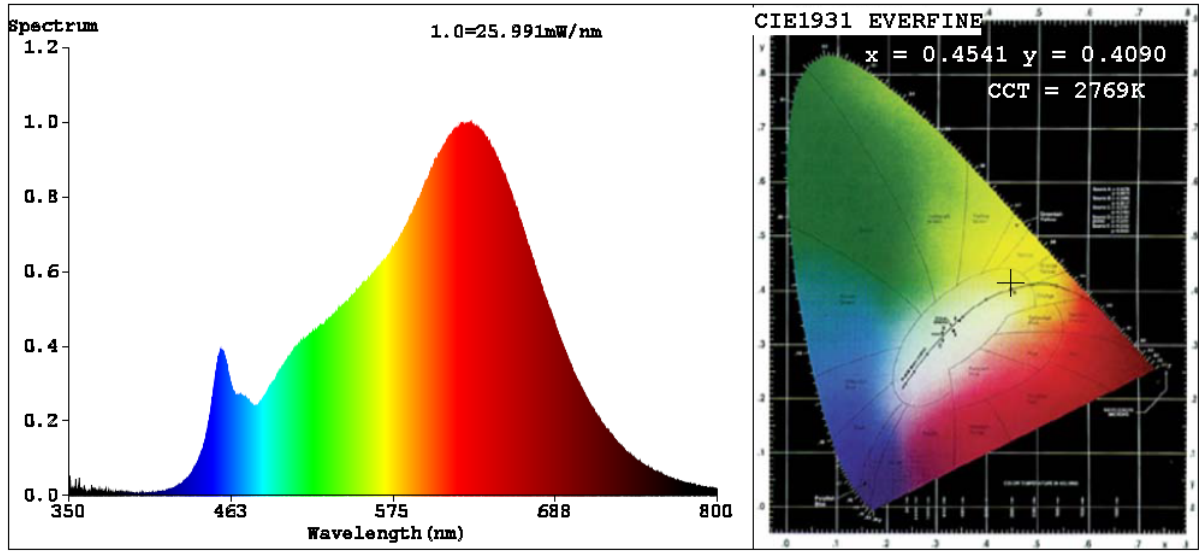
Chromaticity Measurement - Sphere-Spectroradiometer Method:

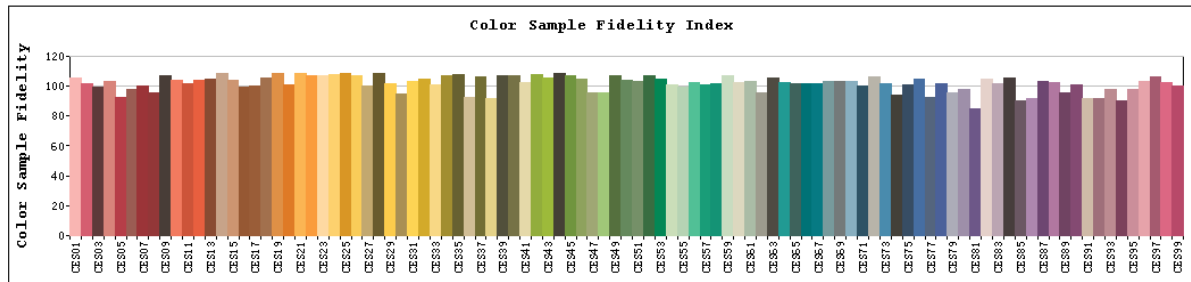
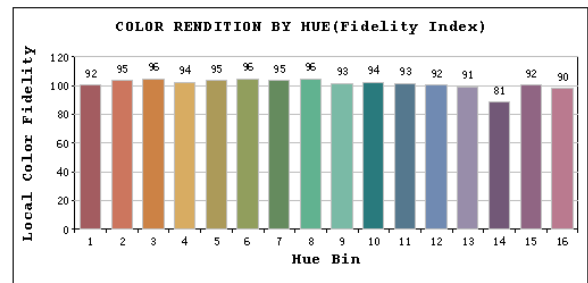
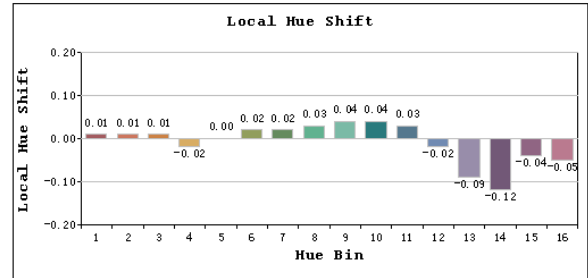
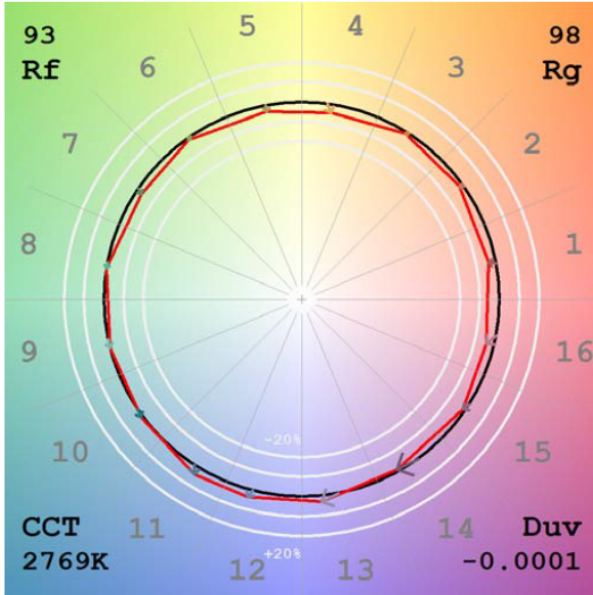
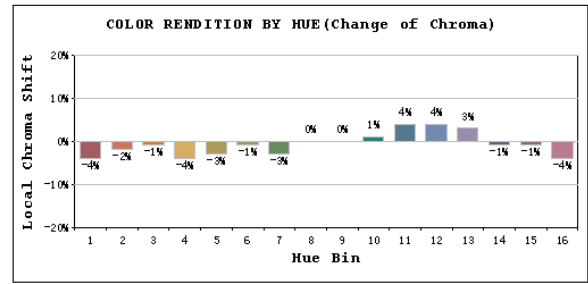
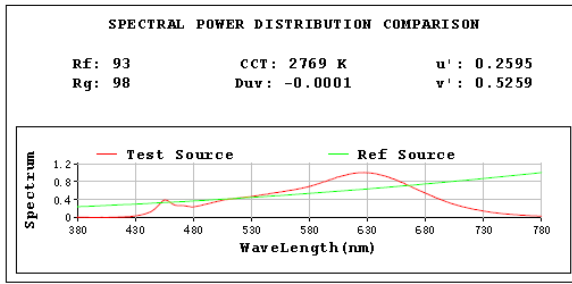
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	98	R9	74
Frequency (Hz)	60	R2	99	R10	99
CCT (K)	2769	R3	98	R11	99
Duv	0.0001	R4	97	R12	87
Chromaticity (x, y)	x=0.4541 y=0.4090	R5	98	R13	99
Chromaticity (u', v')	u'=0.2595 v'=0.5259	R6	95	R14	99
Color Rendering Index (CRI)	95.7	R7	93	R15	94
R9	74	R8	87	--	--
Rg	98				
Rf	93				
Rcs,h1%	-4				

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1155.3
Luminous Efficacy (lm/W)	87.52

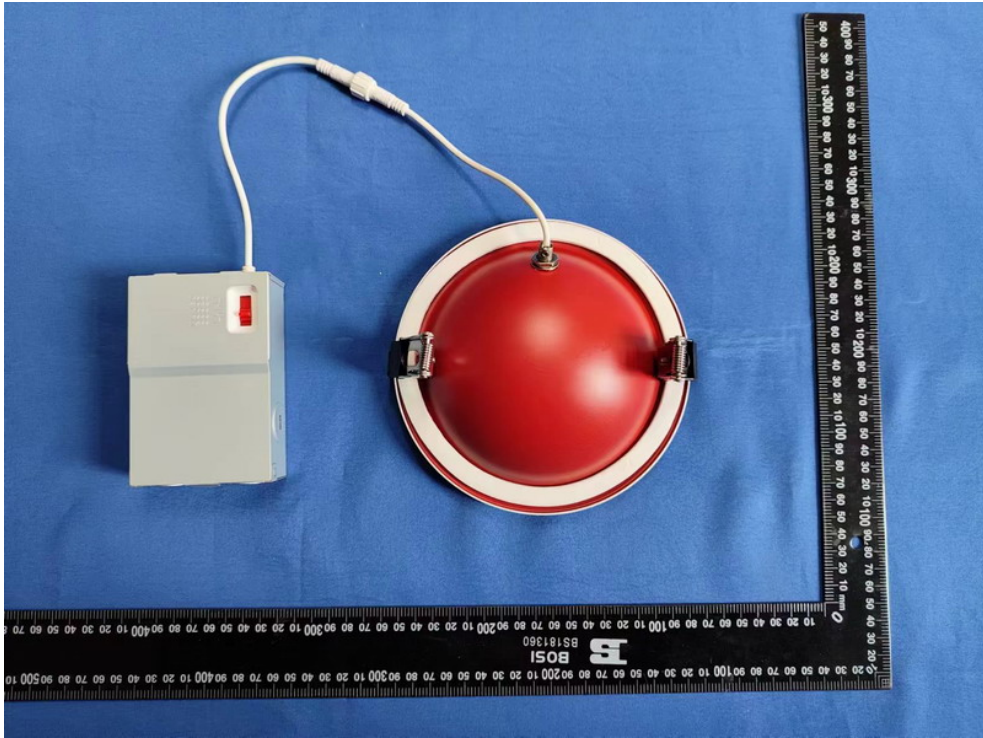
Spectral Power Distribution & Chromaticity Diagram





Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
FGIMBAL6	2700K setting	120	1155.3	13.20	87.52
	3000K setting	120	1191.5	13.10	90.95
	3500K setting	120	1261.0	12.90	95.75
	4000K setting	120	1305.8	13.10	99.68
	5000K setting	120	1328.7	13.60	97.70

3. Product Photo



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