

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):
DLW0055(WFRL6R139FA120WS)

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

**Type of
Luminaire:** Downlights

Report Date: 2020-08-17

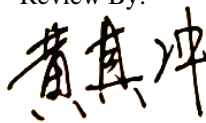
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120VAC, 60 Hz
Nominal Power	13.0W
Rated Initial Lamp Lumen	1000 lm
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:</p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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:</p> <p>Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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:</p> <p>Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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	2020-08-15	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0055(WFRL6R139FA120WS)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
2008140023	120.0	60	0.104	12.30	0.987

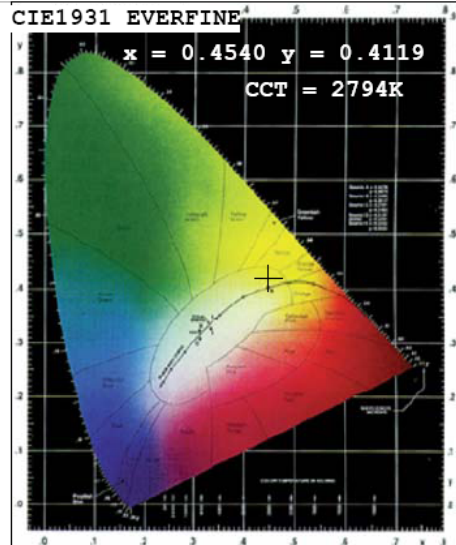
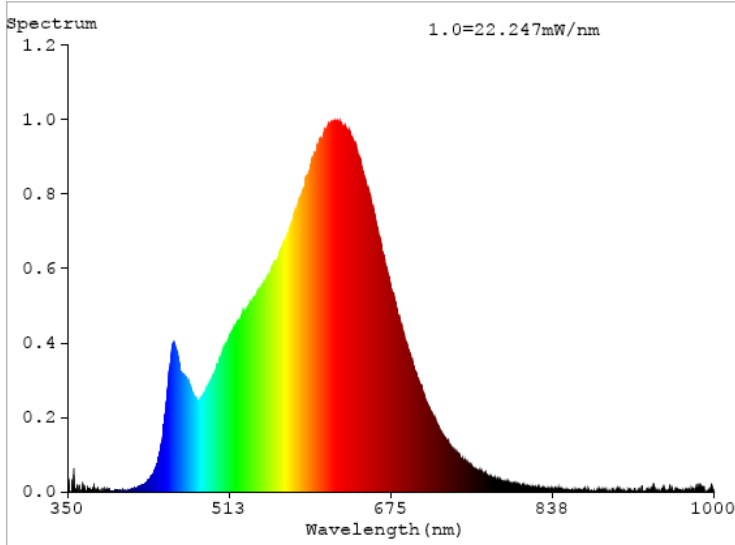
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	93	R9	57
Frequency (Hz)	60	R2	98	R10	95
CCT (K)	2794	R3	97	R11	94
Duv	0.0010	R4	92	R12	83
Chromaticity (x, y)	x=0.4540 y=0.4119	R5	93	R13	95
Chromaticity (u', v')	u'=0.2582 v'=0.5270	R6	98	R14	99
Color Rendering Index (CRI)	92.6	R7	90	R15	88
R9	57	R8	80	--	--

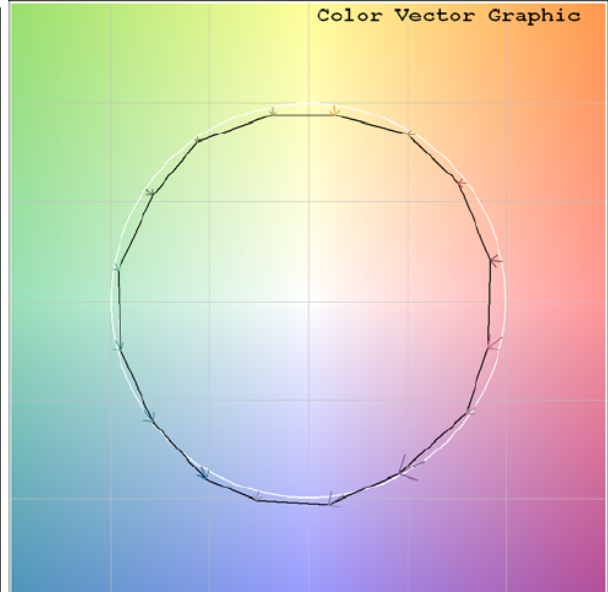
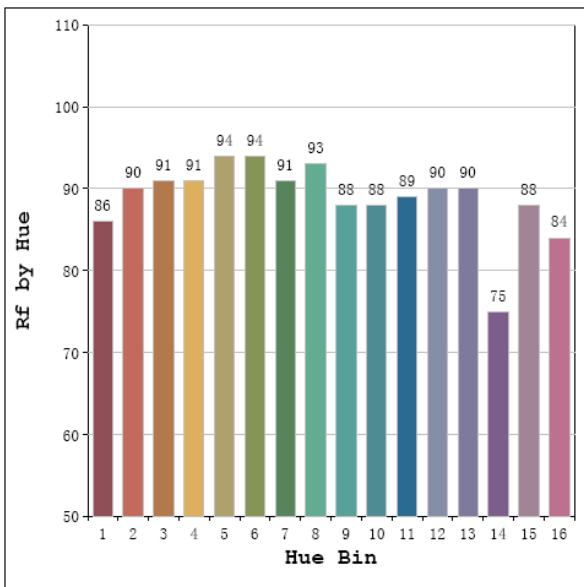
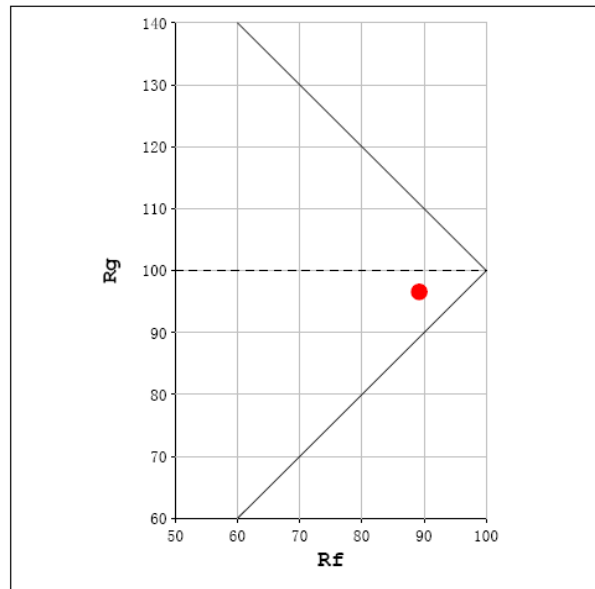
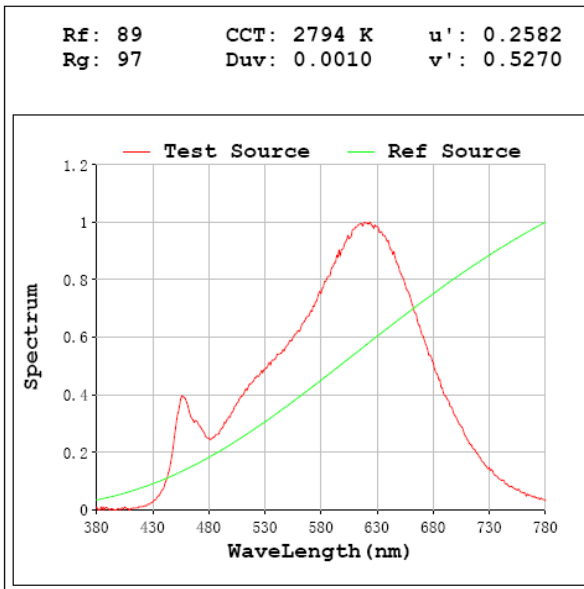
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1047.5
Luminous Efficacy (lm/W)	85.17
Beam Angle (°)	110.9
Center Beam Candle Power (cd)	368.8

Spectral Power Distribution & Chromaticity Diagram



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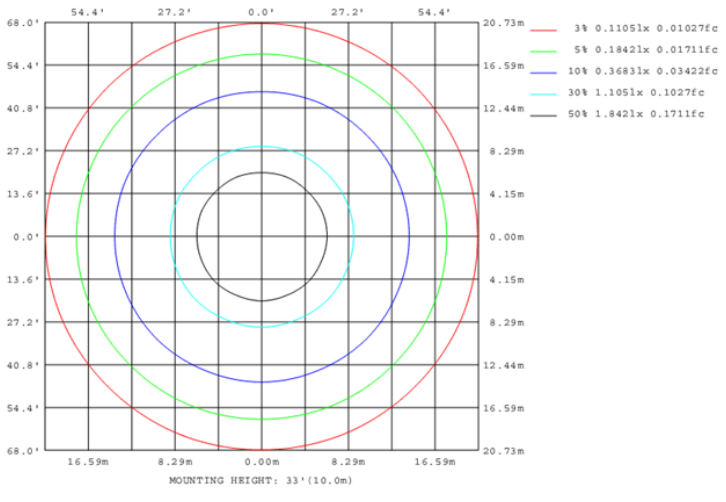
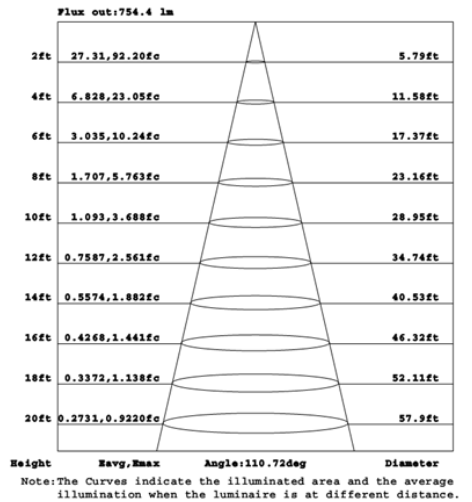
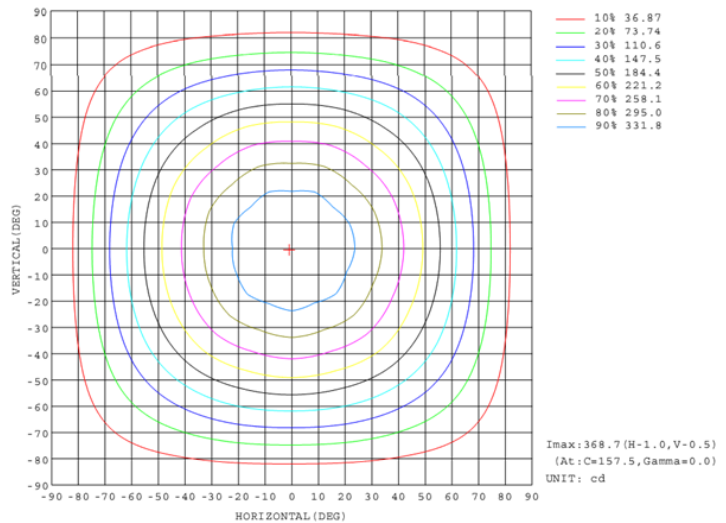
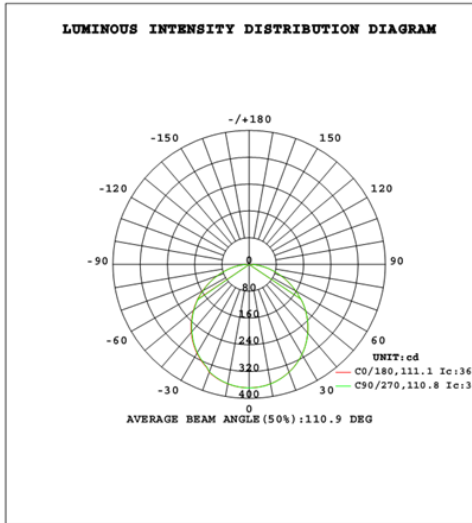


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	284.6	27.2%
0-40	464.6	44.3%
0-60	817.3	78.0%
60-90	230.3	22.0%
70-100	102.8	9.8%
90-120	0.0	0.0%
0-90	1047.5	100.0%
90-180	0.0	0.0%
0-180	1047.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	34.9	3.3%	90-100	0.0	0.0%
10-20	99.8	9.5%	100-110	0.0	0.0%
20-30	150.0	14.3%	110-120	0.0	0.0%
30-40	180.0	17.2%	120-130	0.0	0.0%
40-50	185.8	17.7%	130-140	0.0	0.0%
50-60	166.9	15.9%	140-150	0.0	0.0%
60-70	127.5	12.2%	150-160	0.0	0.0%
70-80	76.6	7.3%	160-170	0.0	0.0%
80-90	26.3	2.5%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2020-08-15	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0055(WFRL6R139FA120WS)	3000K	

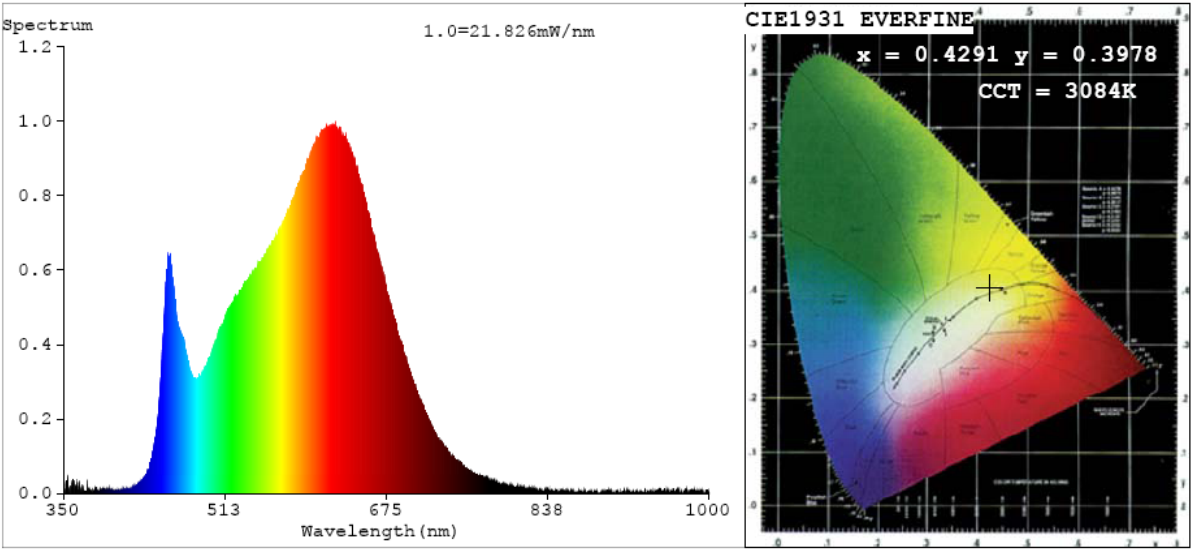
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
2008140023	120.0	60	0.103	12.23	0.986

Chromaticity Measurement - Sphere-Spectroradiometer Method:

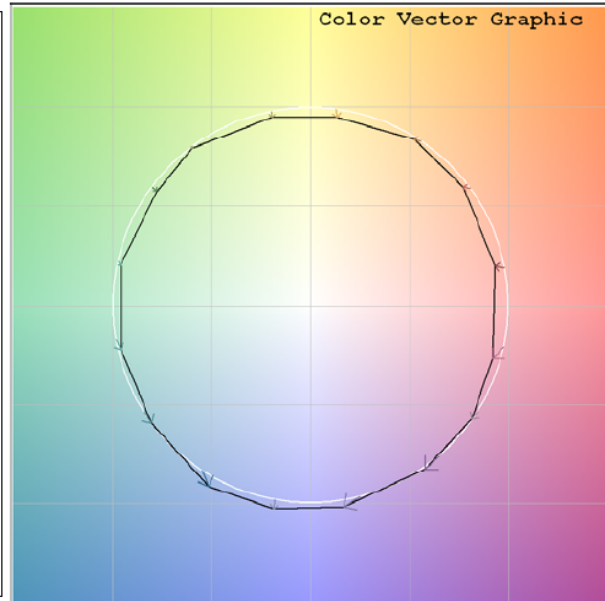
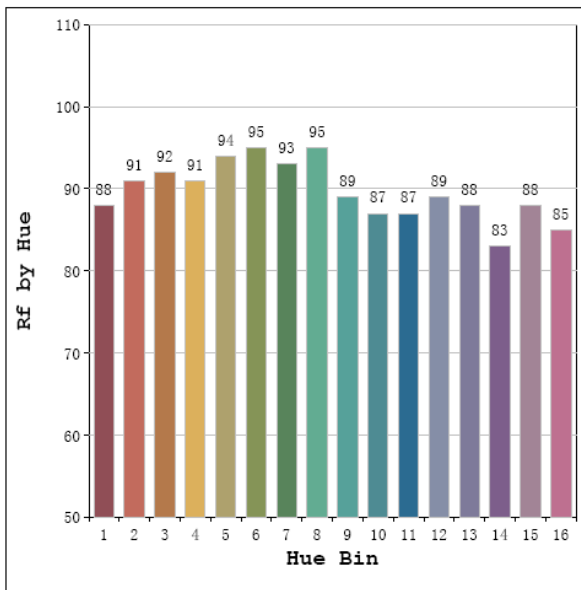
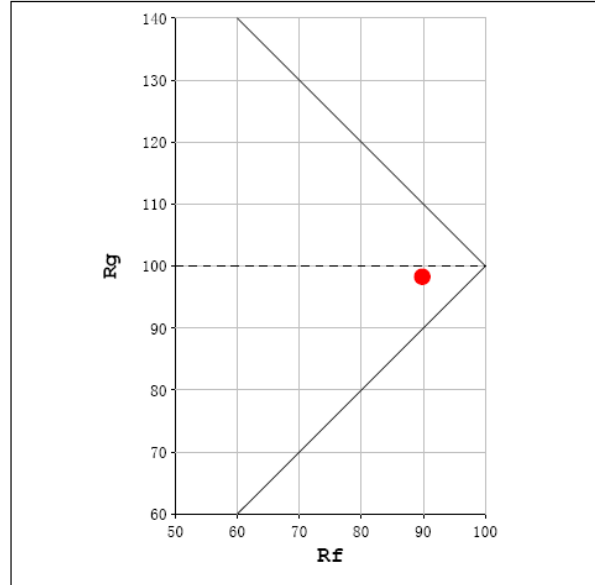
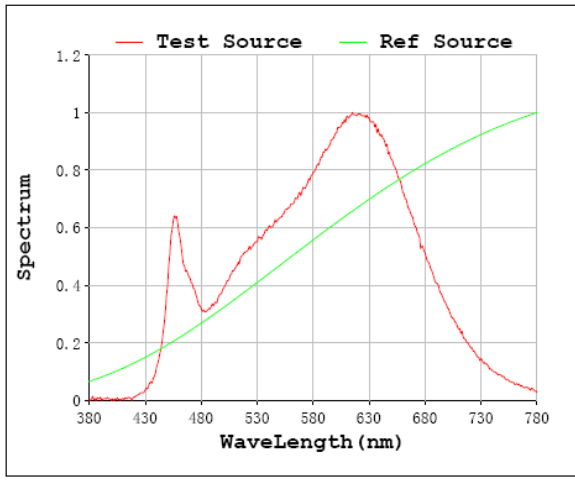
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	66
Frequency (Hz)	60	R2	100	R10	98
CCT (K)	3084	R3	97	R11	94
Duv	0.0014	R4	93	R12	80
Chromaticity (x, y)	x=0.4291 y=0.3978	R5	95	R13	97
Chromaticity (u', v')	u'=0.2482 v'=0.5177	R6	96	R14	99
Color Rendering Index (CRI)	93.8	R7	91	R15	92
R9	66	R8	84	--	--
Total Luminous (lm)	1086				
Luminous Efficacy (lm/W)	88.82				

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3084 K u': 0.2482
 Rg: 98 Duv: -0.0014 v': 0.5177



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2020-08-15	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0055(WFRL6R139FA120WS)	3500K	

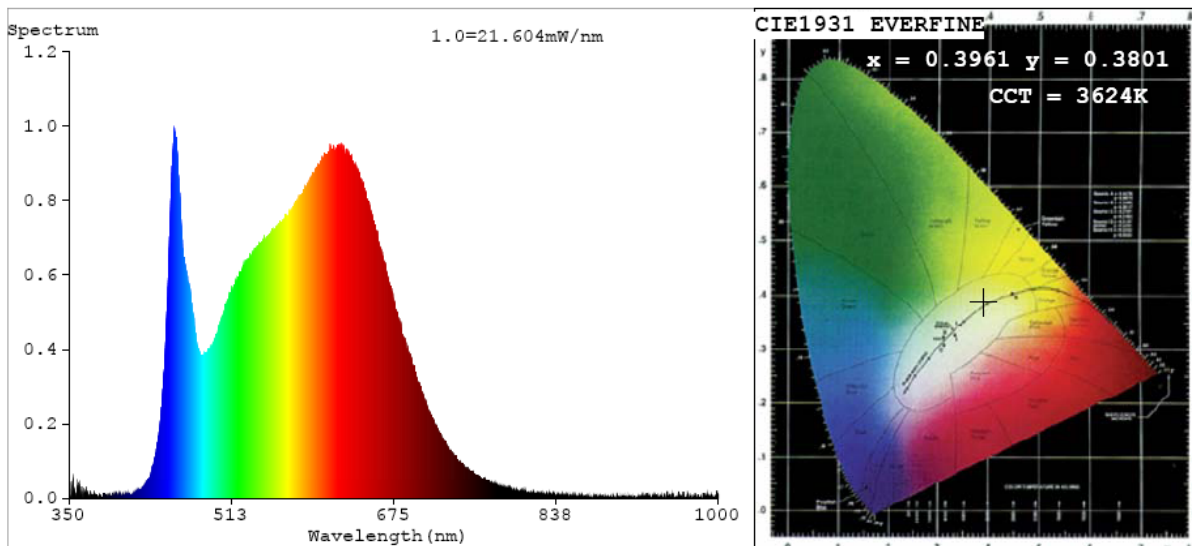
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
2008140023	120.0	60	0.101	12.00	0.985

Chromaticity Measurement - Sphere-Spectroradiometer Method:

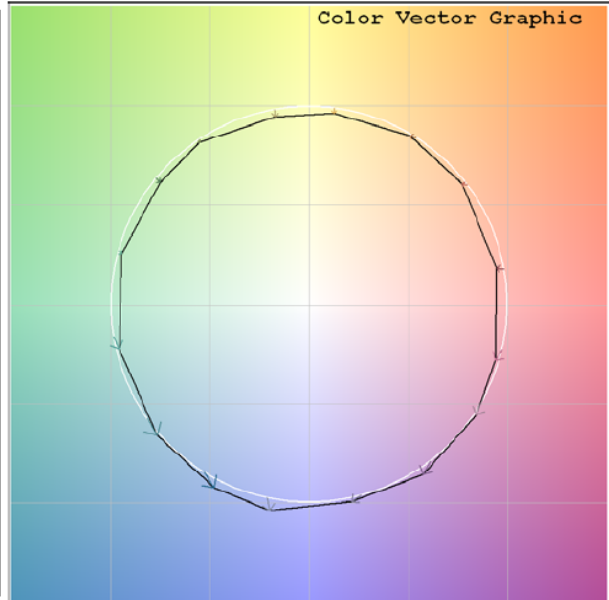
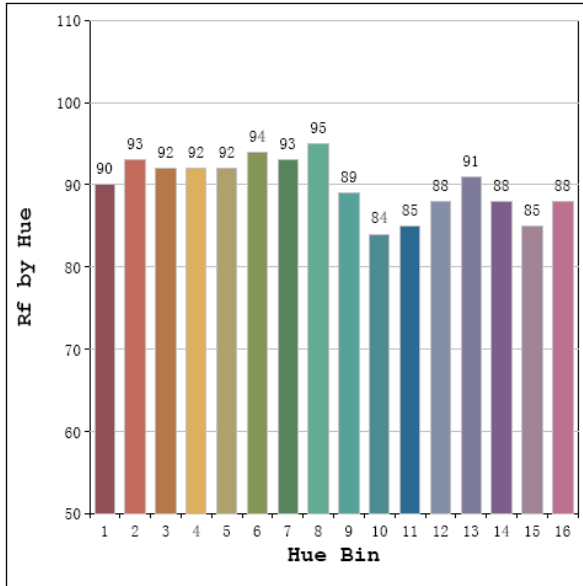
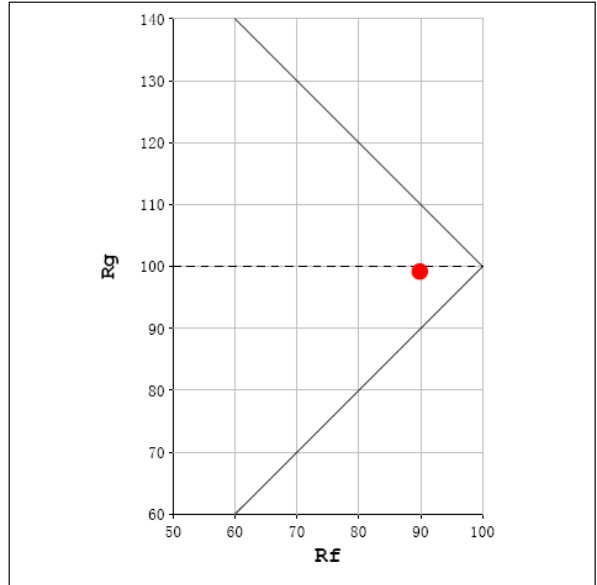
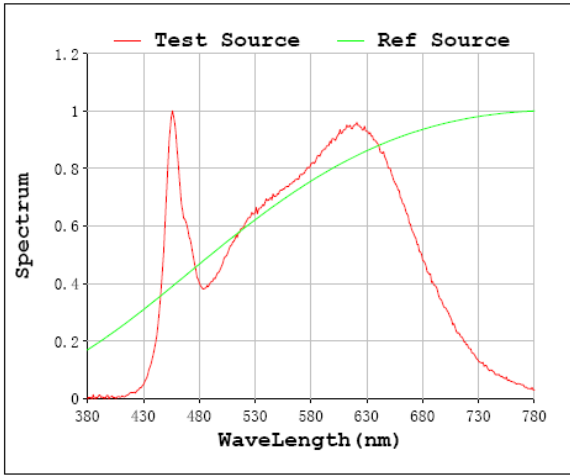
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	77
Frequency (Hz)	60	R2	99	R10	98
CCT (K)	3624	R3	98	R11	94
Duv	0.0027	R4	93	R12	74
Chromaticity (x, y)	x=0.3961 y=0.3801	R5	95	R13	99
Chromaticity (u', v')	u'=0.2341 v'=0.5054	R6	95	R14	100
Color Rendering Index (CRI)	94.7	R7	92	R15	95
R9	77	R8	88	--	--
Total Luminous (lm)	1147				
Luminous Efficacy (lm/W)	95.55				

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3624 K u': 0.2341
 Rg: 99 Duv: -0.0027 v': 0.5054



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2020-08-15	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0055(WFRL6R139FA120WS)		4000K

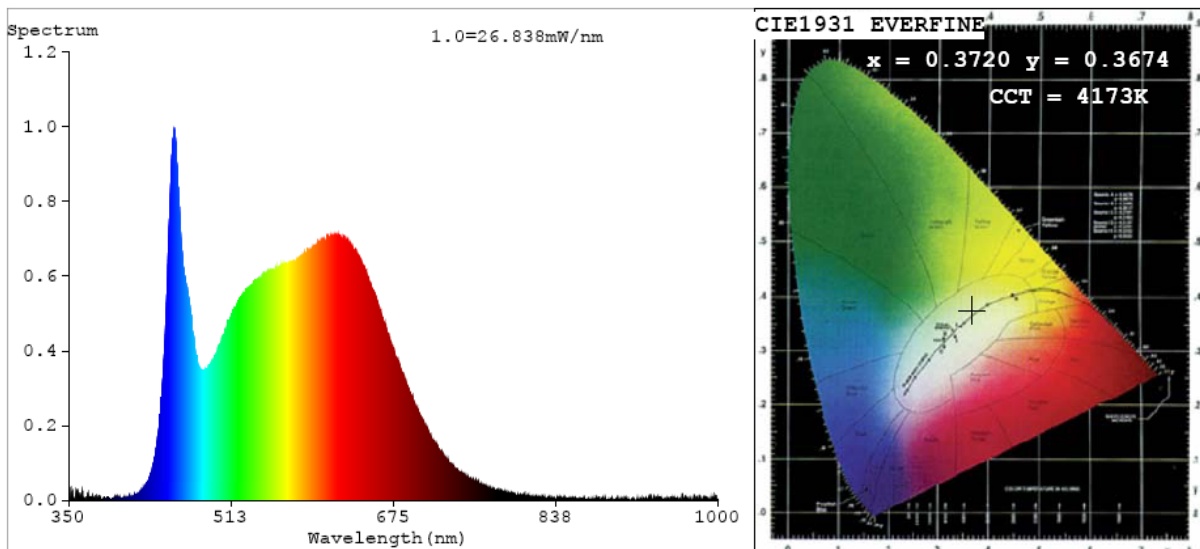
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
2008140023	120.0	60	0.102	12.10	0.986

Chromaticity Measurement - Sphere-Spectroradiometer Method:

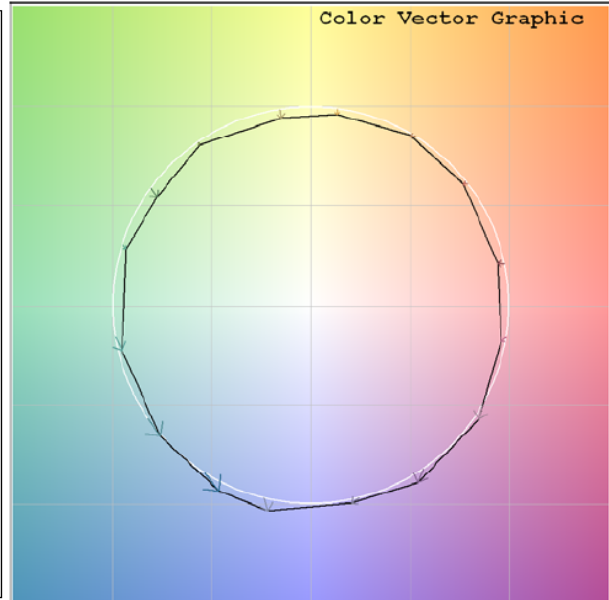
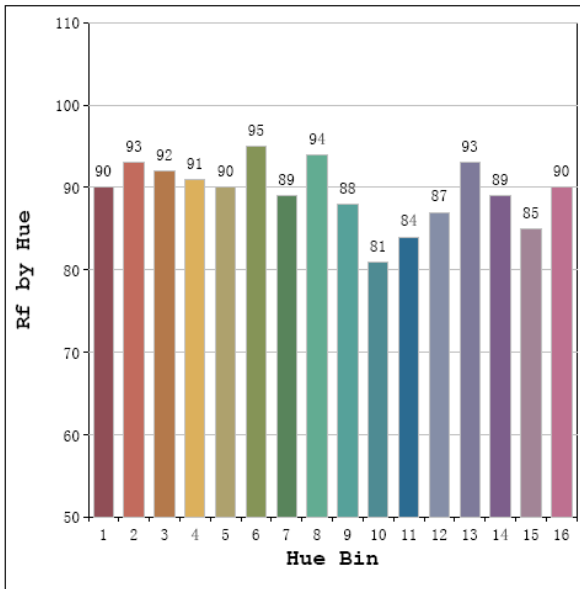
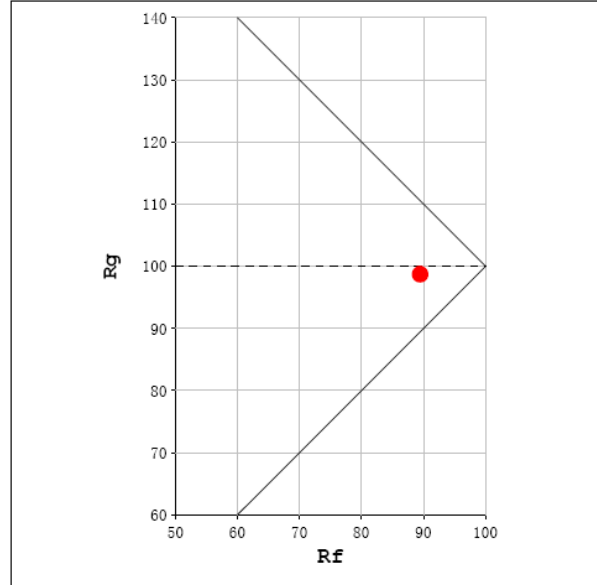
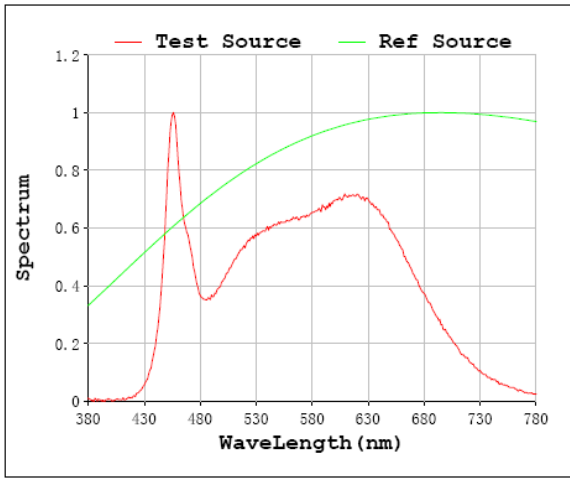
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	97	R9	80
Frequency (Hz)	60	R2	99	R10	97
CCT (K)	4173	R3	98	R11	93
Duv	0.0019	R4	93	R12	69
Chromaticity (x, y)	x=0.3720 y=0.3674	R5	94	R13	99
Chromaticity (u', v')	u'=0.2233 v'=0.4961	R6	95	R14	99
Color Rendering Index (CRI)	94.8	R7	93	R15	95
R9	80	R8	90	--	--
Total Luminous (lm)	1177				
Luminous Efficacy (lm/W)	97.28				

Spectral Power Distribution & Chromaticity Diagram



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Rf: 89 CCT: 4173 K u': 0.2233
 Rg: 99 Duv: -0.0019 v': 0.4961



2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2020-08-15	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0055(WFRL6R139FA120WS)	5000K	

Electrical Measurement:

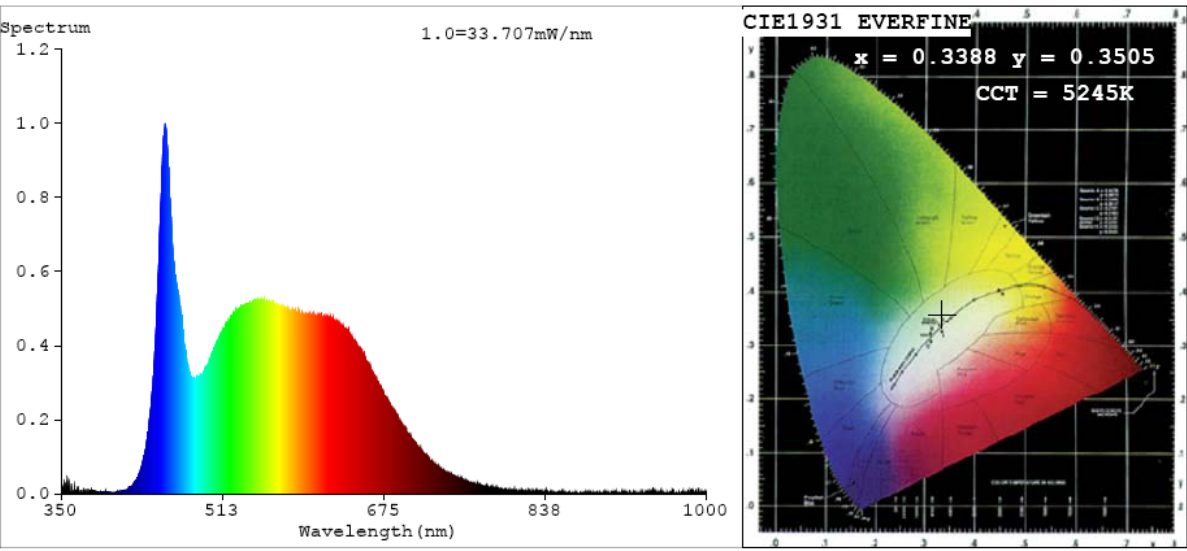
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
2008140023	120.0	60	0.106	12.58	0.987

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	5245
Duv	0.0021
Chromaticity (x, y)	x=0.3388 y=0.3505
Chromaticity (u', v')	u'=0.2076 v'=0.4832
Color Rendering Index (CRI)	93.0
R9	72
Total Luminous (lm)	1184
Luminous Efficacy (lm/W)	94.12

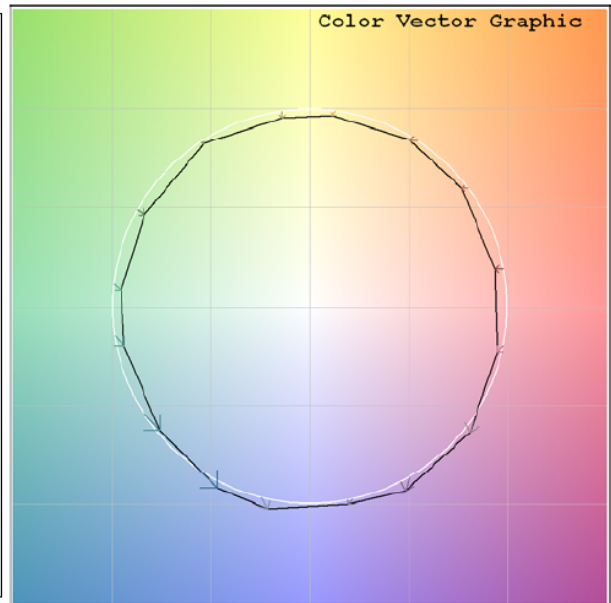
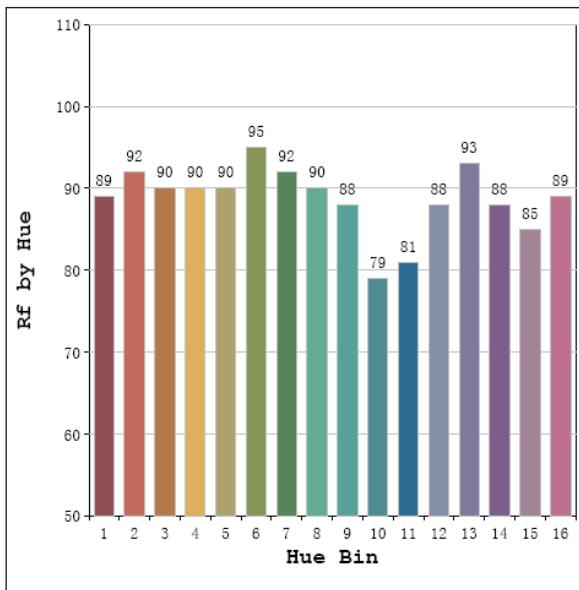
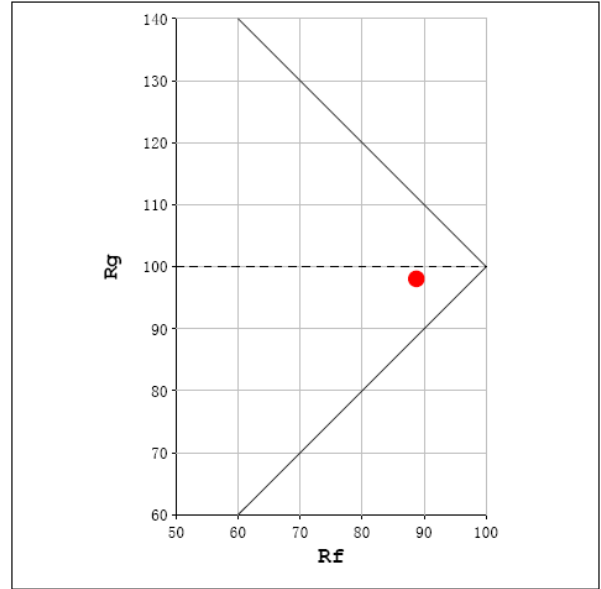
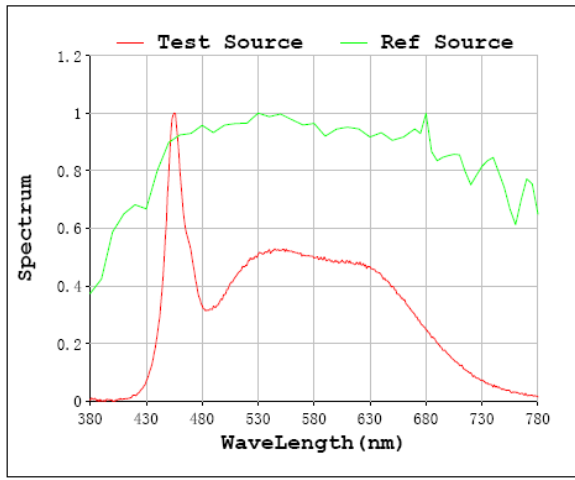
Special Color Rendering Indices			
R1	93	R9	72
R2	97	R10	90
R3	96	R11	91
R4	91	R12	67
R5	92	R13	95
R6	92	R14	98
R7	94	R15	92
R8	89	--	--

Spectral Power Distribution & Chromaticity Diagram

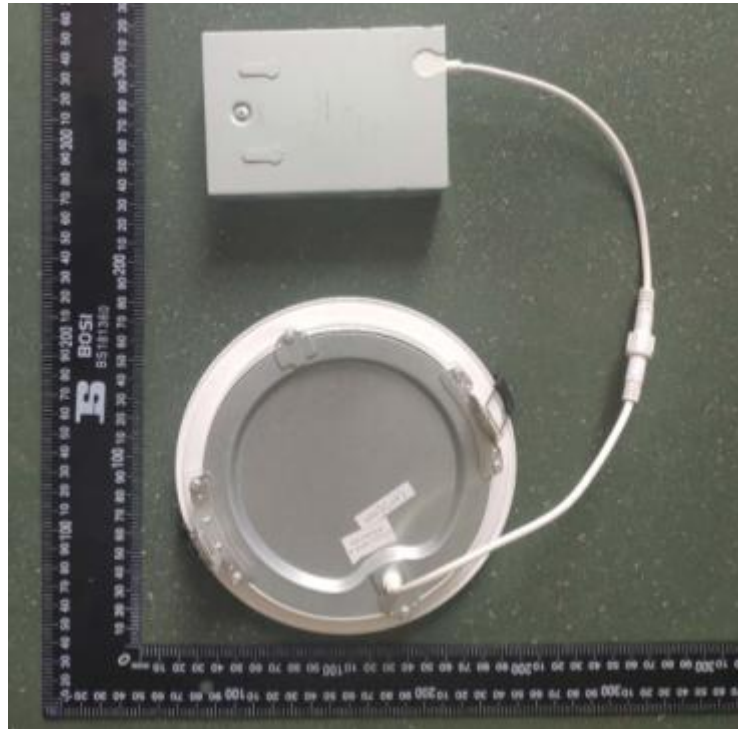


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Rf: 89 CCT: 5245 K u': 0.2076
 Rg: 98 Duv: 0.0021 v': 0.4832



3. Product Photo



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