

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):
DLW0066(WFRL6R139FADWB)

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

**Type of
Luminaire:** Downlights

Report Date: 2021-08-30

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	13W
Rated Initial Lamp Lumen	950 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

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.

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.

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.

2.1.1 Electrical, Photometric and Chromaticity Measurements

Test date	2021-08-30	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0066(WFRL6R139FADWB)	2700K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300008	120.0	60	0.107	12.8	0.995

Chromaticity Measurement - Sphere-Spectroradiometer Method:

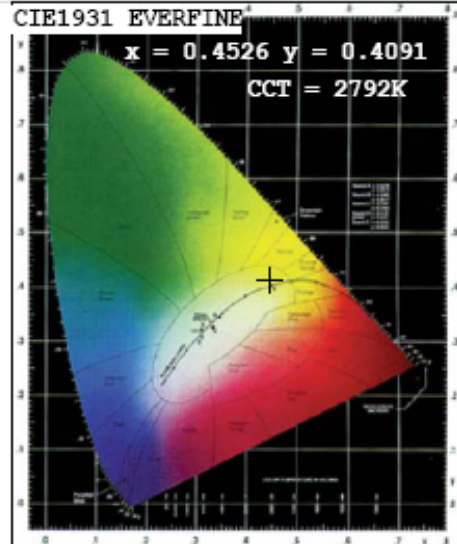
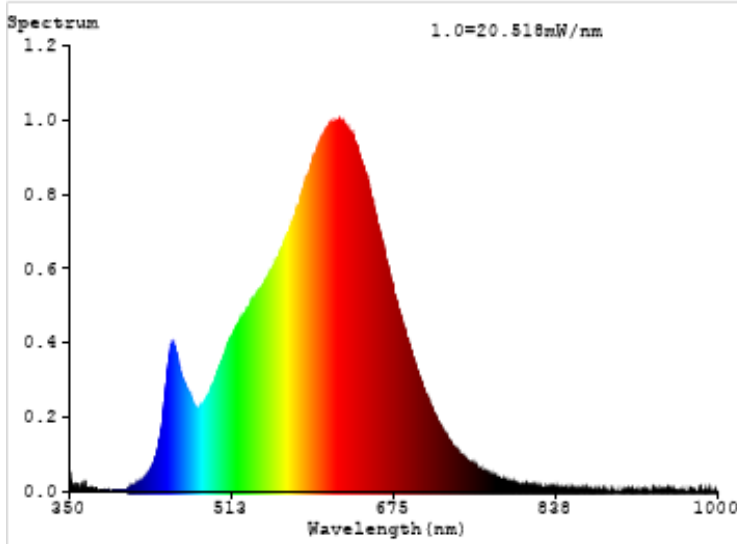
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	92	R9	53
Frequency (Hz)	60	R2	97	R10	92
CCT (K)	2792	R3	98	R11	93
Duv	0.0001	R4	91	R12	83
Chromaticity (x, y)	x=0.4526 y=0.4091	R5	92	R13	94
Chromaticity (u', v')	u'=0.2585 v'=0.5257	R6	97	R14	100
Color Rendering Index (CRI)	92.0	R7	90	R15	87
R9	53	R8	78	--	--

Photometric Measurement – Goniophotometer Method:

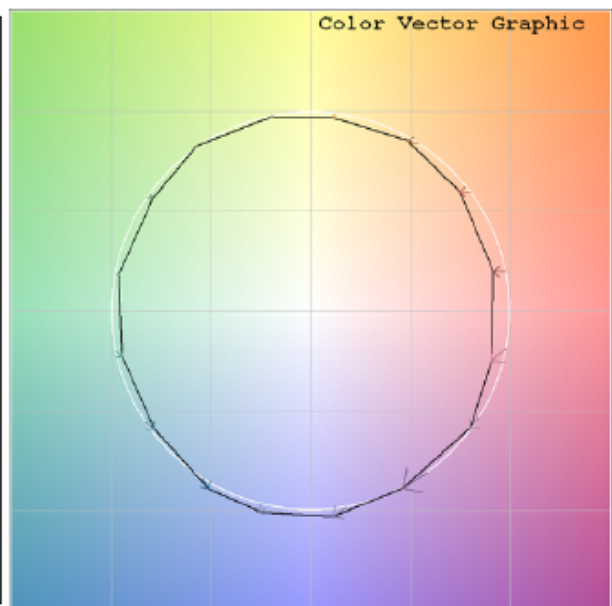
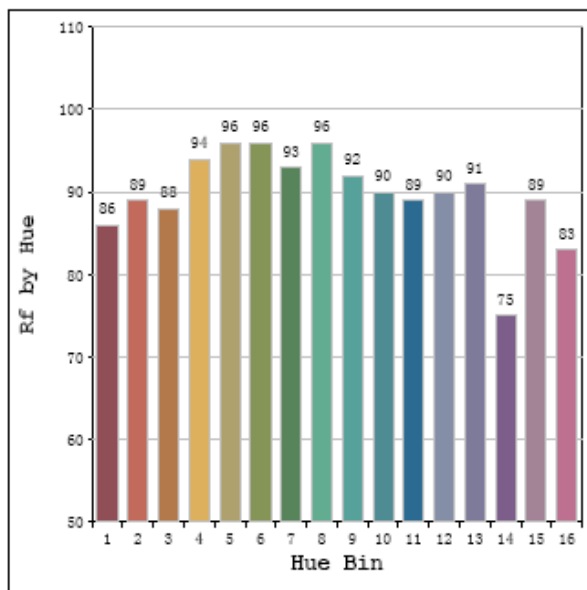
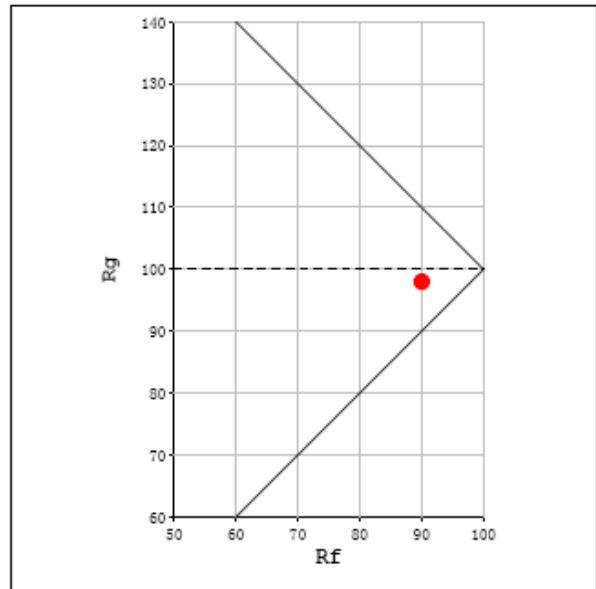
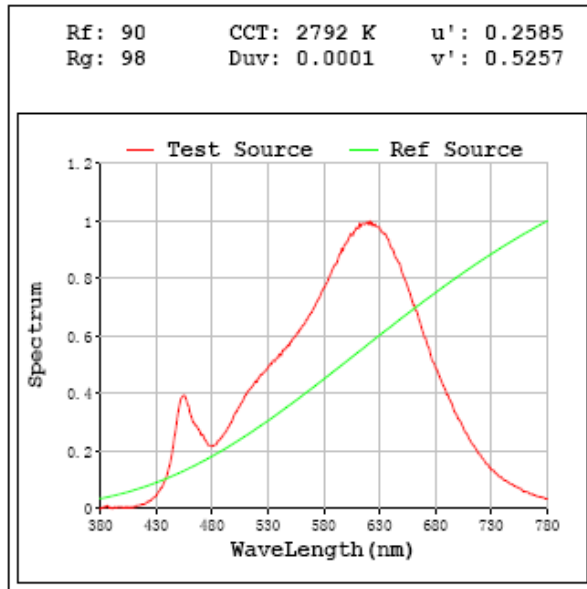
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	974.03
Luminous Efficacy (lm/W)	76.1
Beam Angle (°)	112
Center Beam Candle Power (cd)	342.1

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	962.5
Luminous Efficacy (lm/W)	71.83

Spectral Power Distribution & Chromaticity Diagram



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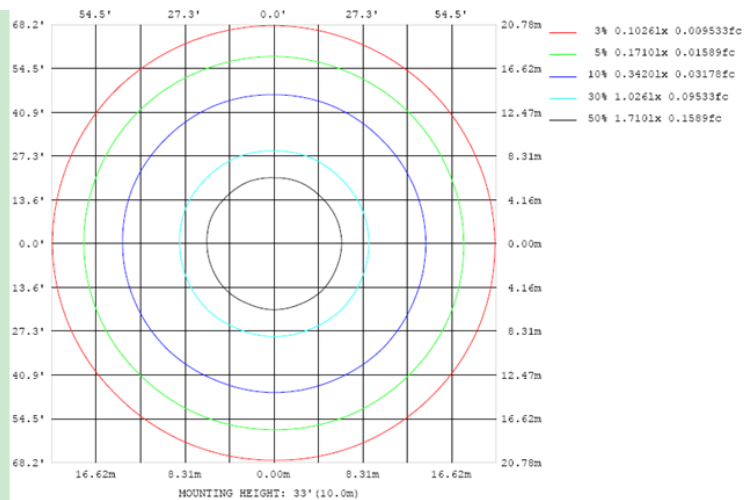
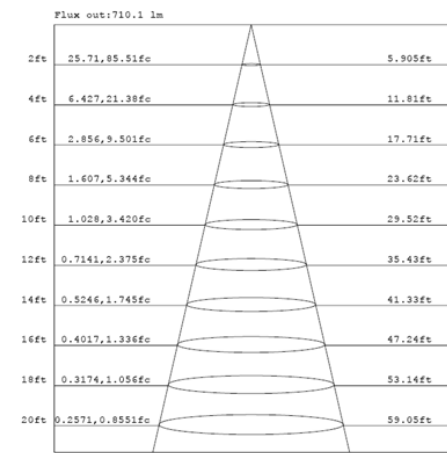
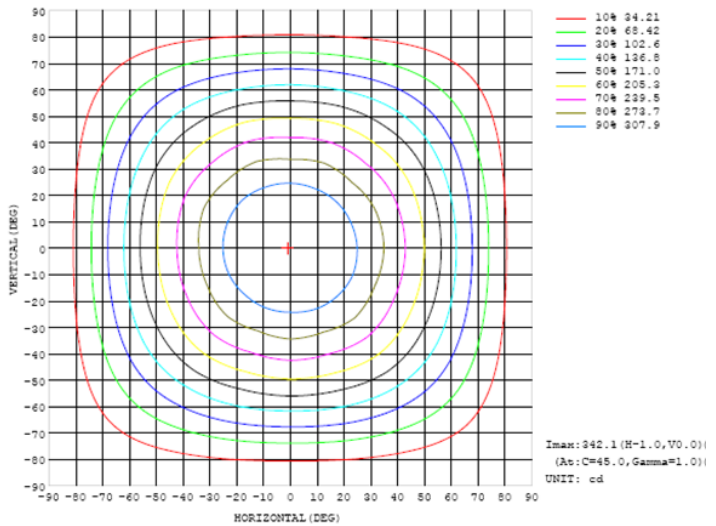
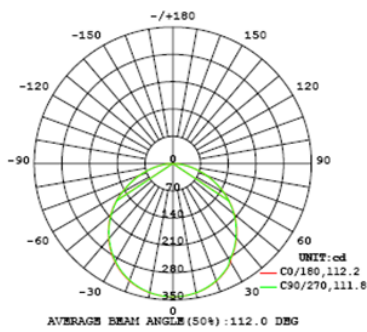
Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	267.0	27.4%
0-40	436.4	44.8%
0-60	769.4	79.0%
60-90	204.6	21.0%
70-100	86.8	8.9%
90-120	0.0	0.0%
0-90	974.0	100.0%
90-180	0.0	0.0%
0-180	974.0	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	32.4	3.3%	90-100	0.0	0.0%
10-20	93.1	9.6%	100-110	0.0	0.0%
20-30	141.5	14.5%	110-120	0.0	0.0%
30-40	169.4	17.4%	120-130	0.0	0.0%
40-50	175.4	18.0%	130-140	0.0	0.0%
50-60	157.6	16.2%	140-150	0.0	0.0%
60-70	117.9	12.1%	150-160	0.0	0.0%
70-80	67.1	6.9%	160-170	0.0	0.0%
80-90	19.7	2.0%	170-180	0.0	0.0%

Photometric Data

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2021-08-30	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0066(WFRL6R139FADWB)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300008	120.0	60	0.1065	12.70	0.994

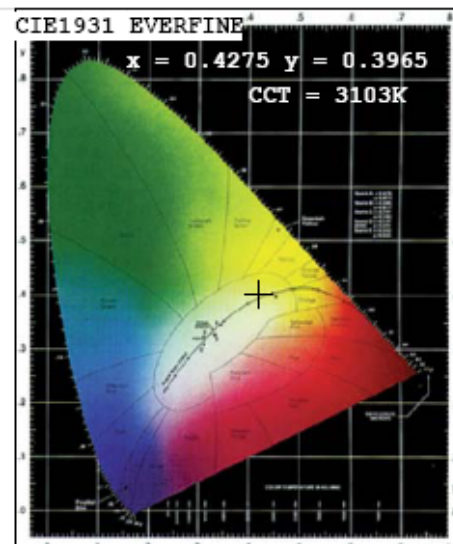
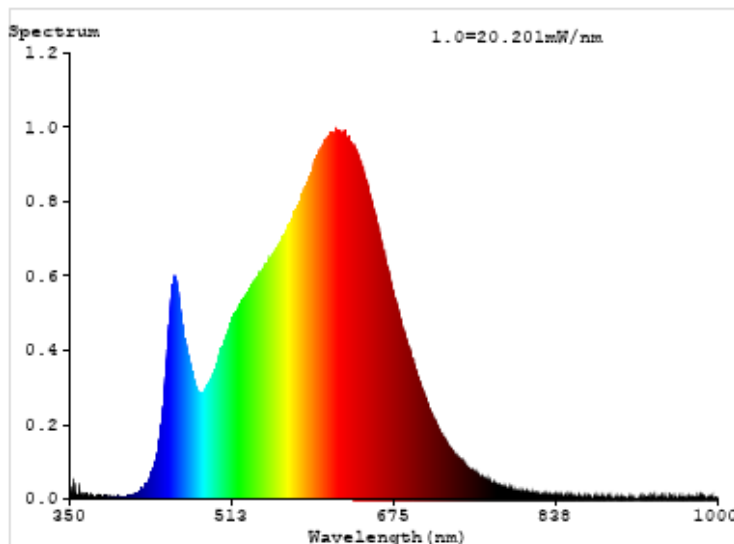
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3103
Duv	-0.0017
Chromaticity (x, y)	x=0.4275 y=0.3965
Chromaticity (u', v')	u'=0.2477 v'=0.5169
Color Rendering Index (CRI)	93.7
R9	64
Total Luminous (lm)	1019
Luminous Efficacy (lm/W)	80.24

Special Color Rendering Indices			
R1	95	R9	63
R2	98	R10	95
R3	98	R11	94
R4	93	R12	81
R5	94	R13	96
R6	96	R14	100
R7	91	R15	91
R8	83	--	--

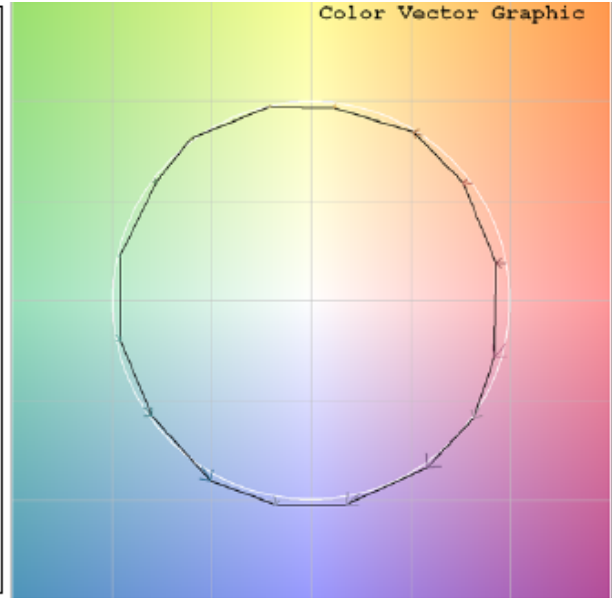
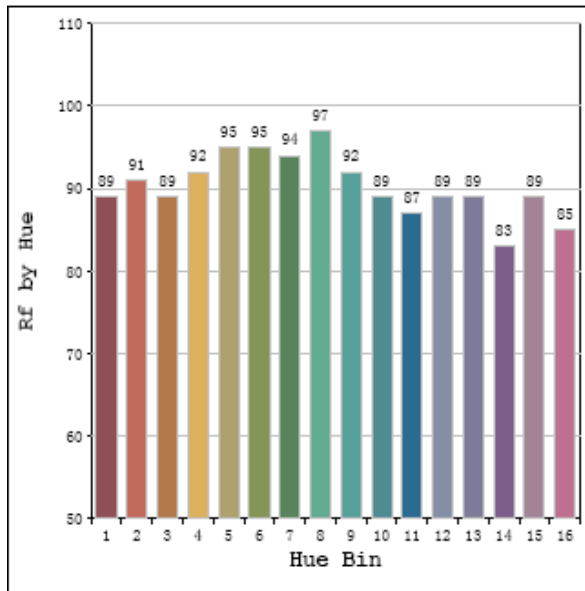
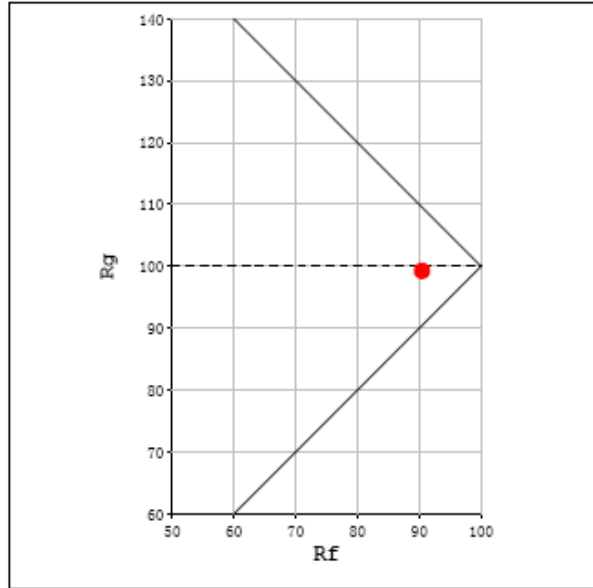
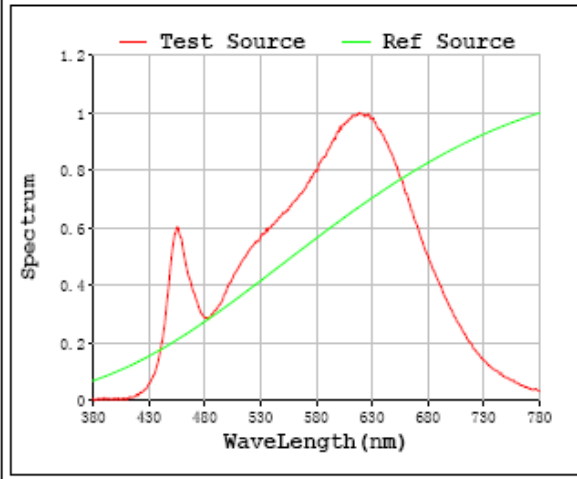
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1011
Luminous Efficacy (lm/W)	76.35

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3103 K u': 0.2477
 Rg: 99 Duv: -0.0017 v': 0.5169



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2021-08-30	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0066(WFRL6R139FADWB)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300008	120.0	60	0.1048	12.5	0.9936

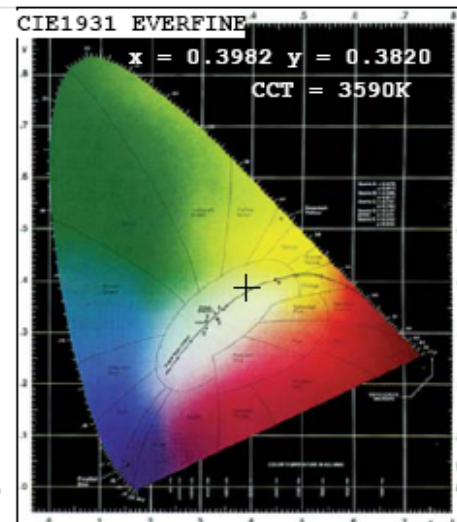
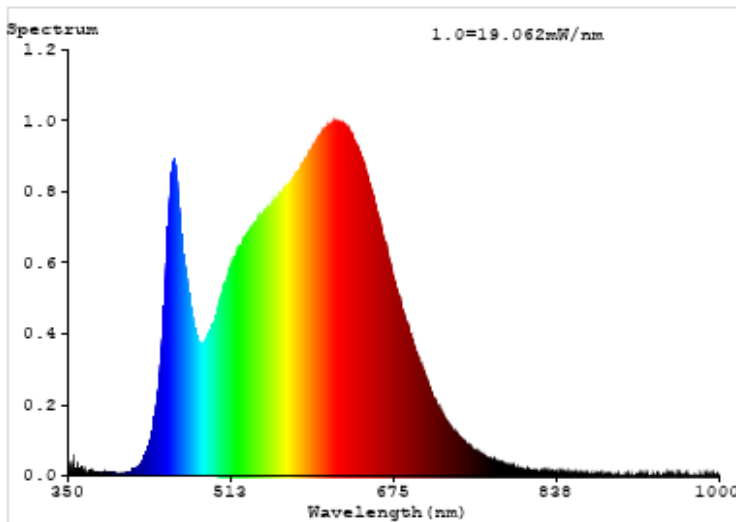
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3590
Duv	-0.0023
Chromaticity (x, y)	$x=0.3982y=0.3820$
Chromaticity (u', v')	$u'=0.2346 v'=0.5065$
Color Rendering Index (CRI)	94.6
R9	72
Total Luminous (lm)	1066
Luminous Efficacy (lm/W)	85.24

Special Color Rendering Indices			
R1	96	R9	72
R2	99	R10	95
R3	98	R11	94
R4	94	R12	76
R5	95	R13	97
R6	95	R14	99
R7	93	R15	94
R8	87	--	--

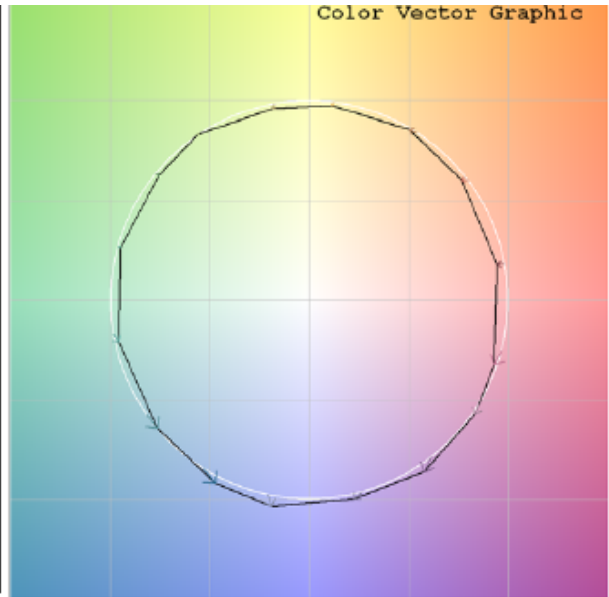
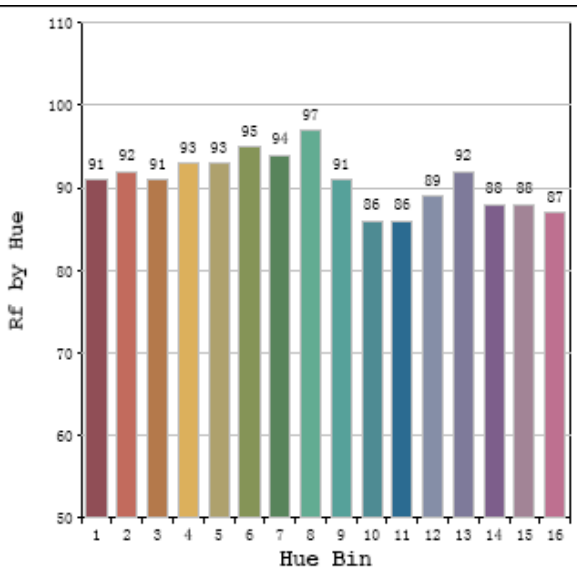
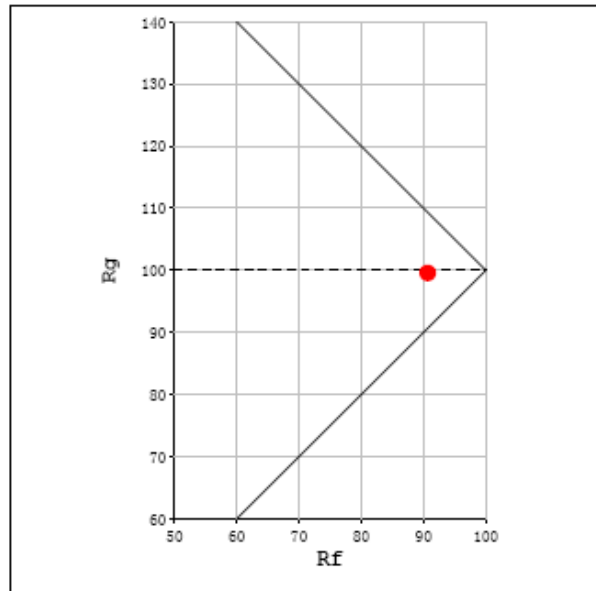
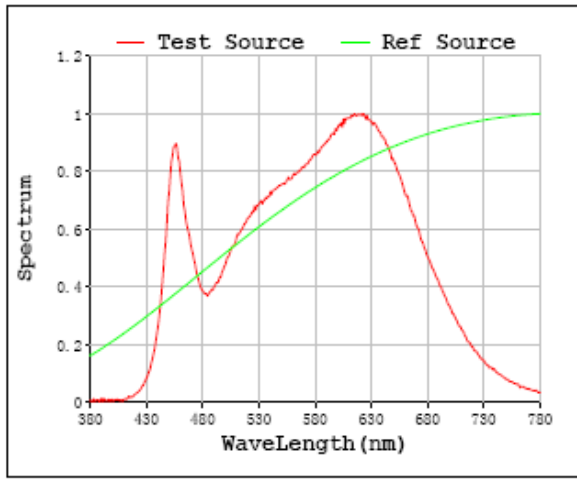
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1060
Luminous Efficacy (lm/W)	81.05

Spectral Power Distribution & Chromaticity Diagram



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Rf: 91 CCT: 3590 K u': 0.2346
 Rg: 100 Duv: -0.0023 v': 0.5065



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2021-08-30	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0066(WFRL6R139FADWB)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300008	120.0	60	0.1054	12.57	0.9937

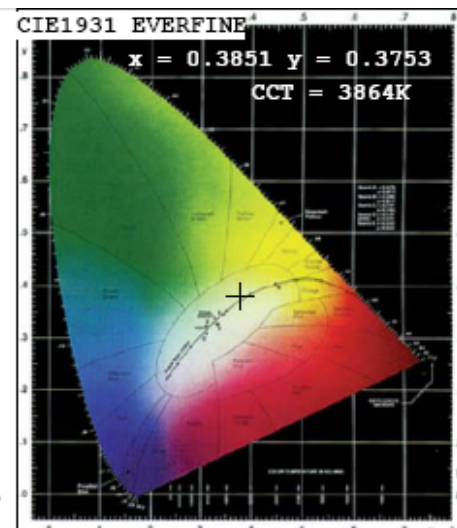
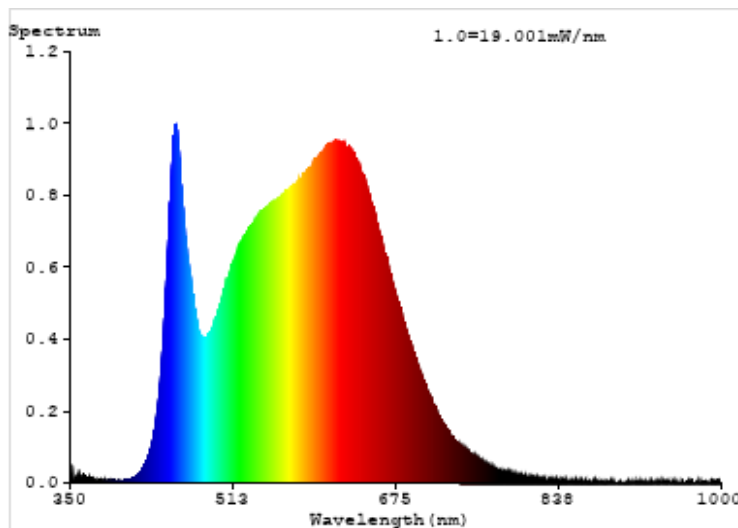
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3864
Duv	-0.0020
Chromaticity (x, y)	x=0.3851 y=0.3753
Chromaticity (u', v')	u'=0.2288 v'=0.5017
Color Rendering Index (CRI)	94.7
R9	75
Total Luminous (lm)	1074
Luminous Efficacy (lm/W)	85.47

Special Color Rendering Indices			
R1	96	R9	75
R2	98	R10	94
R3	98	R11	94
R4	94	R12	73
R5	94	R13	97
R6	95	R14	98
R7	94	R15	94
R8	89	--	--

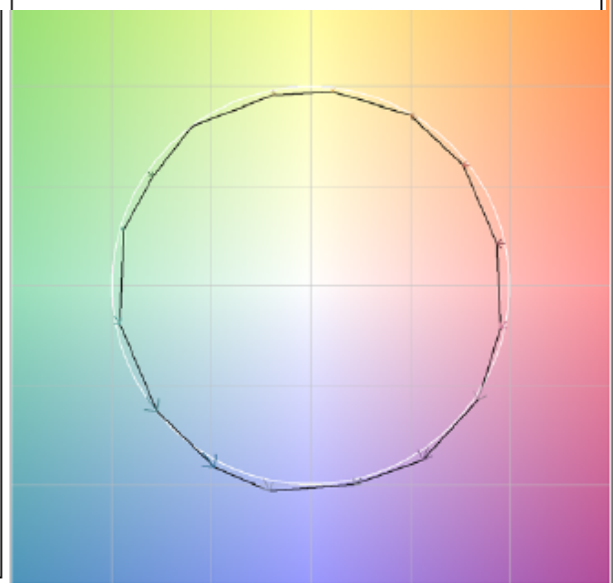
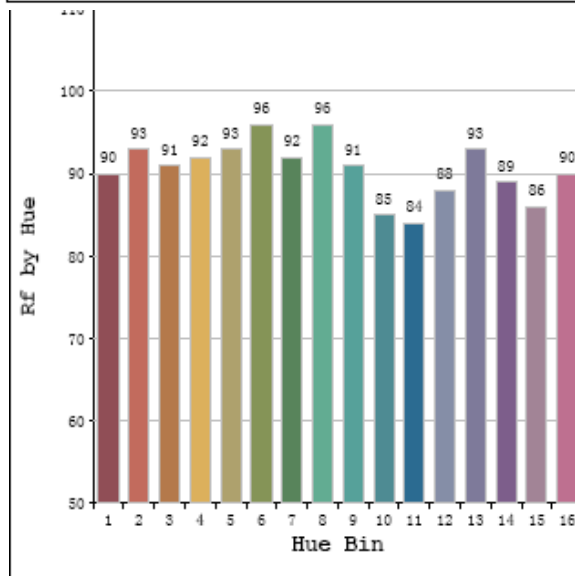
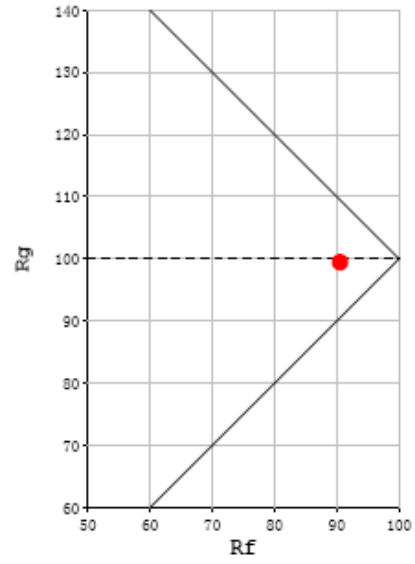
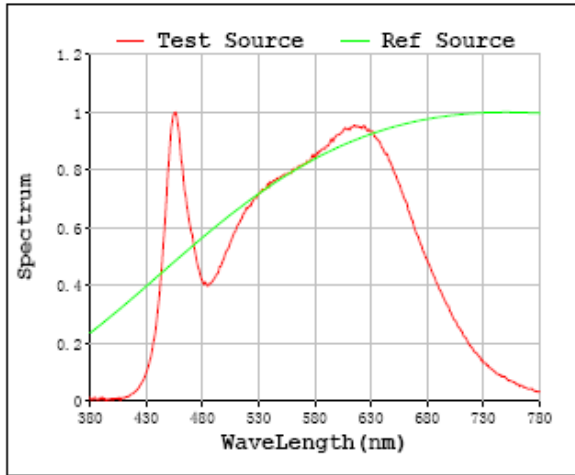
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1065
Luminous Efficacy (lm/W)	81.15

Spectral Power Distribution & Chromaticity Diagram



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Rf: 91 CCT: 3864 K u': 0.2288
 Rg: 99 Duv: -0.0020 v': 0.5017



2.1.5 Electrical, Photometric and Chromaticity Measurements

Test date	2021-08-30	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLW0066(WFRL6R139FADWB) 5000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300008	120.0	60	0.1085	12.95	0.9941

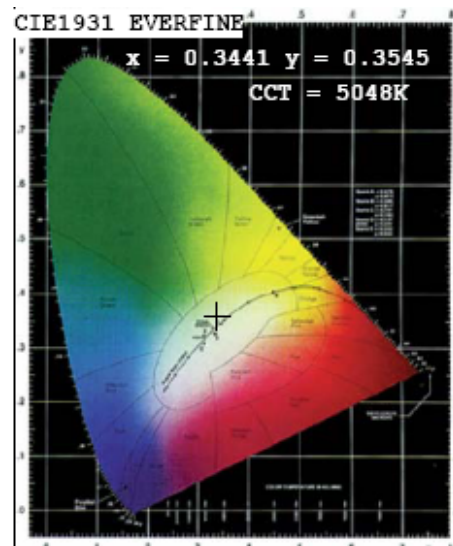
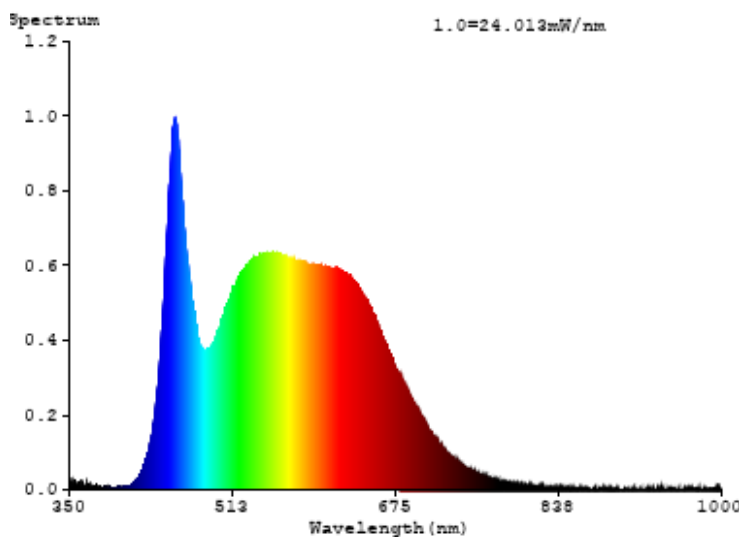
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	5048
Duv	0.0019
Chromaticity (x, y)	x=0.3441 y=0.3545
Chromaticity (u', v')	u'=0.2096 v'=0.4859
Color Rendering Index (CRI)	92.8
R9	69
Total Luminous (lm)	1032
Luminous Efficacy (lm/W)	79.68

Special Color Rendering Indices			
R1	93	R9	69
R2	96	R10	88
R3	95	R11	91
R4	92	R12	70
R5	92	R13	94
R6	92	R14	97
R7	95	R15	92
R8	88	--	--

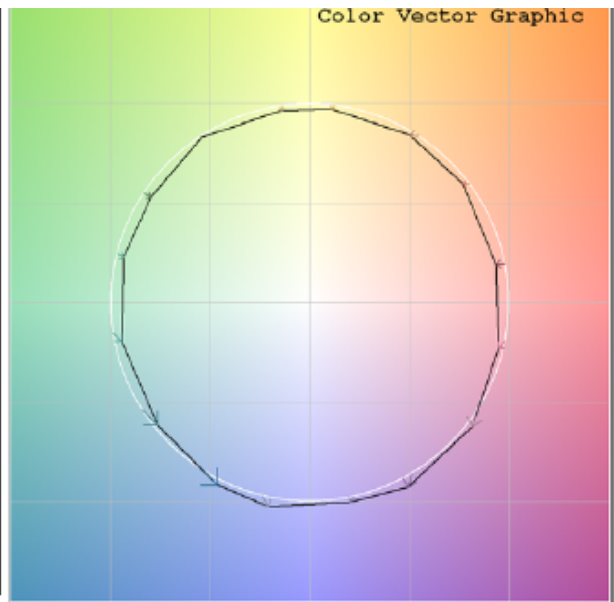
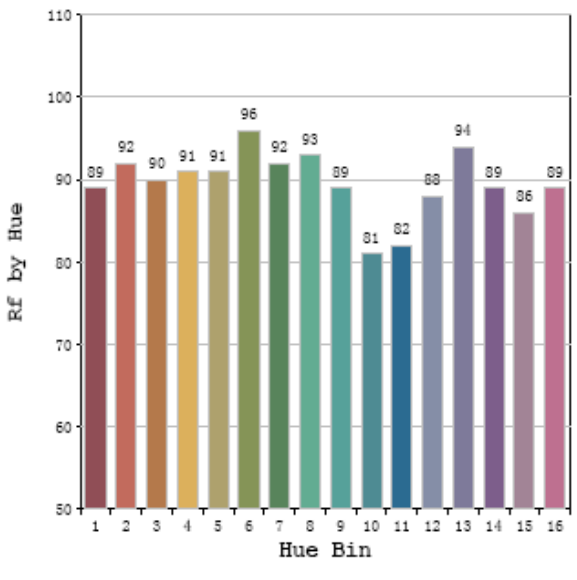
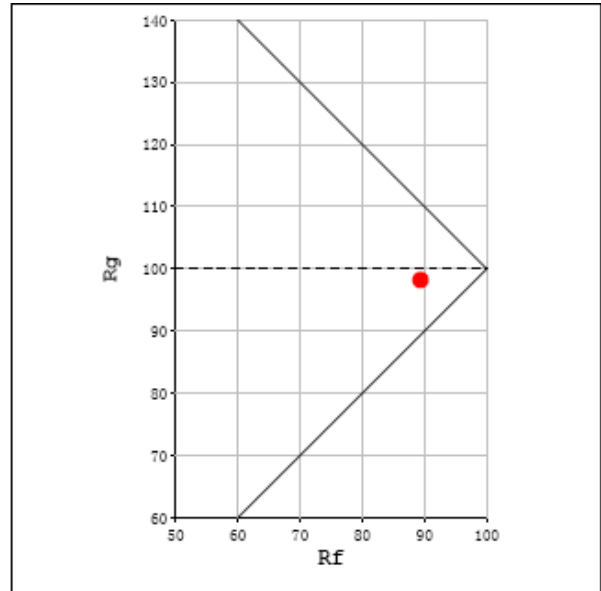
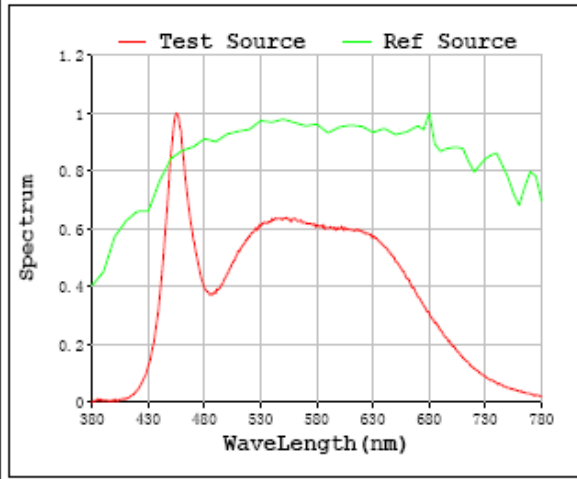
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1024
Luminous Efficacy (lm/W)	75.97

Spectral Power Distribution & Chromaticity Diagram



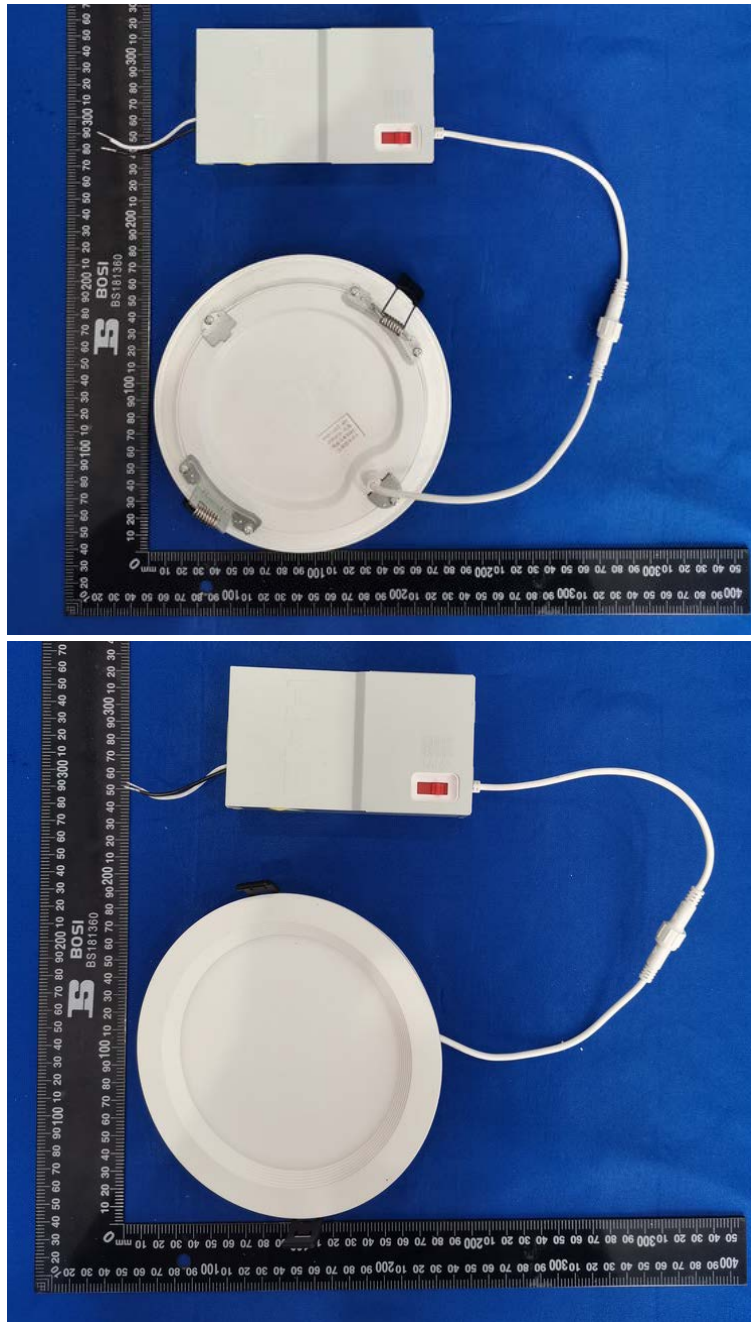
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Rf: 89 CCT: 5048 K u': 0.2096
 Rg: 98 Duv: 0.0019 v': 0.4859



Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DLW0066(WFRL6R139FADWB)	2700K setting	120.0	974.0	12.80	76.1
		277.0	962.5	13.4	71.83
	3000K setting	120.0	1019	12.7	80.24
		277.0	1011	13.25	76.35
	3500K setting	120.0	1066	12.5	85.24
		277.0	1060	13.08	81.05
	4000K setting	120.0	1074	12.57	85.47
		277.0	1065	13.13	81.15
	5000K setting	120.0	1032	12.95	79.68
		277.0	1024	13.48	75.97

3. Product Photo



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