

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):
DLW0075(WFRL4R10.59FA120WB)

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

**Type of
Luminaire:** Downlights

Report Date: 2021-08-30

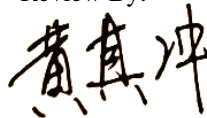
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120Vac, 60 Hz
Nominal Power	10.5W
Rated Initial Lamp Lumen	750 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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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.

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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.

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 $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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.

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	DLW0075(WFRL4R10.59FA120WB) 2700K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
2020108300005	120.0	60	0.088	10.4	0.9830

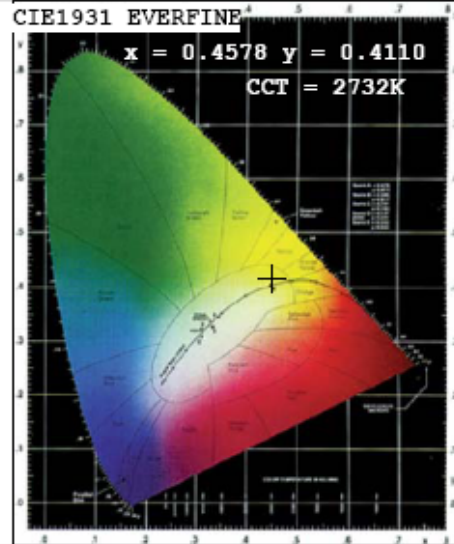
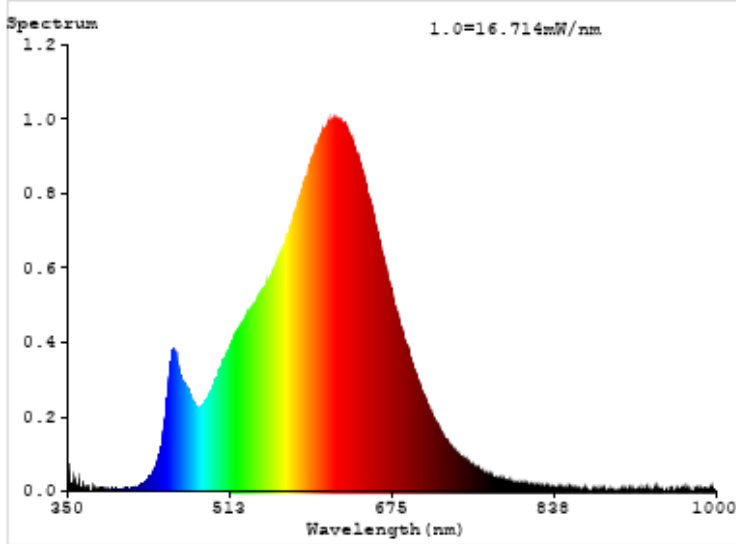
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	92	R9	50
Frequency (Hz)	60	R2	98	R10	94
CCT (K)	2732	R3	97	R11	91
Duv	0.0003	R4	90	R12	83
Chromaticity (x, y)	x=0.4578 y=0.4110	R5	92	R13	93
Chromaticity (u', v')	u'=0.2610 v'=0.5272	R6	97	R14	99
Color Rendering Index (CRI)	91.2	R7	89	R15	86
R9	50	R8	76	--	--

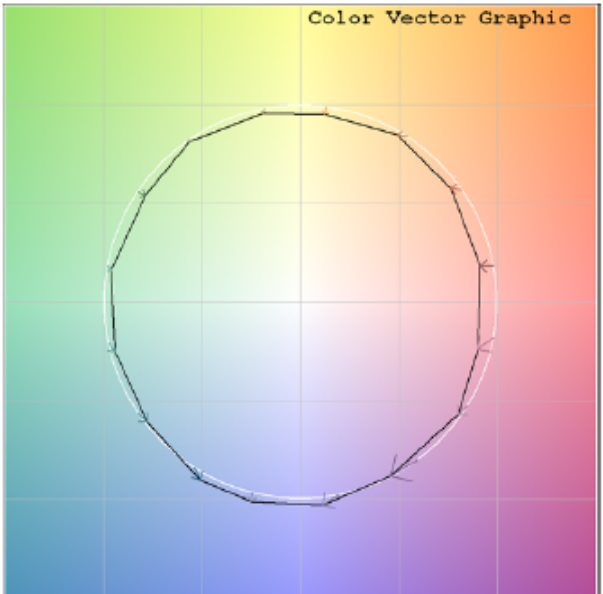
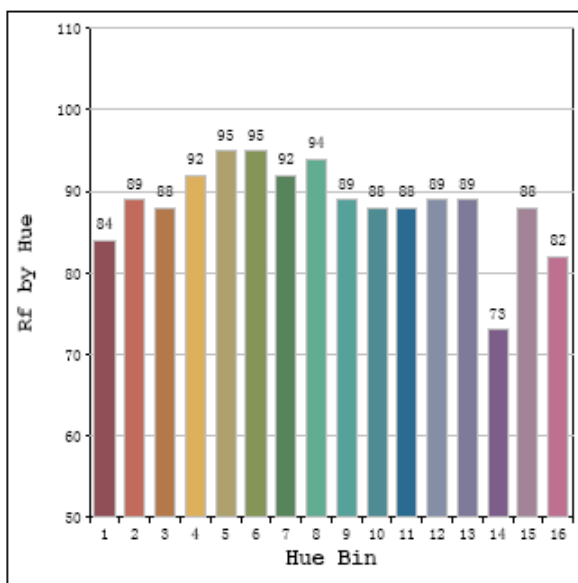
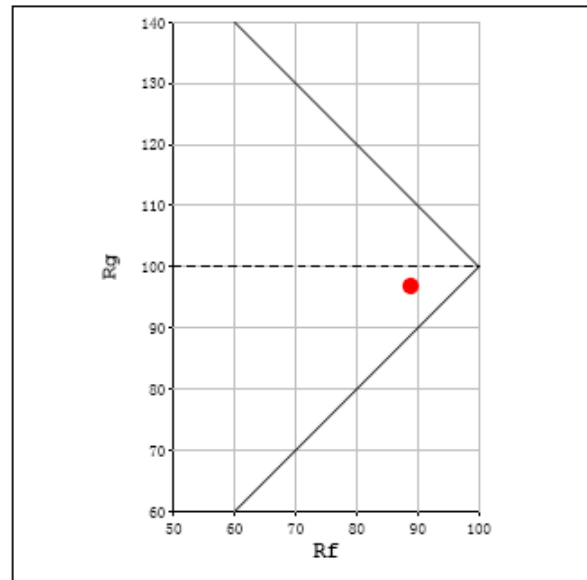
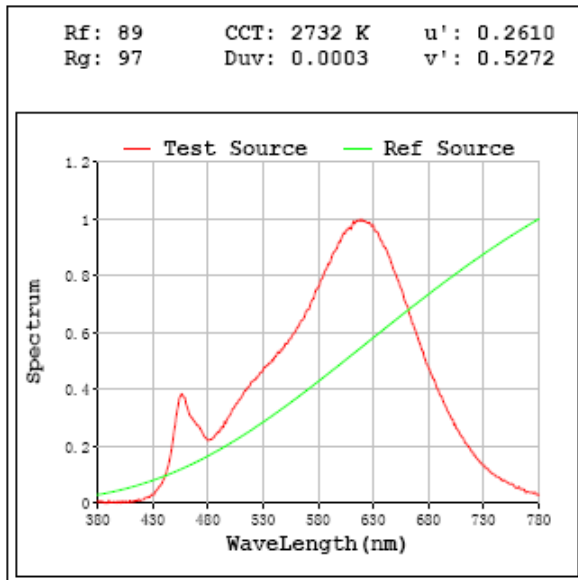
Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	774.49
Luminous Efficacy (lm/W)	74.47
Beam Angle (°)	111.2
Center Beam Candle Power (cd)	277.1

Spectral Power Distribution & Chromaticity Diagram



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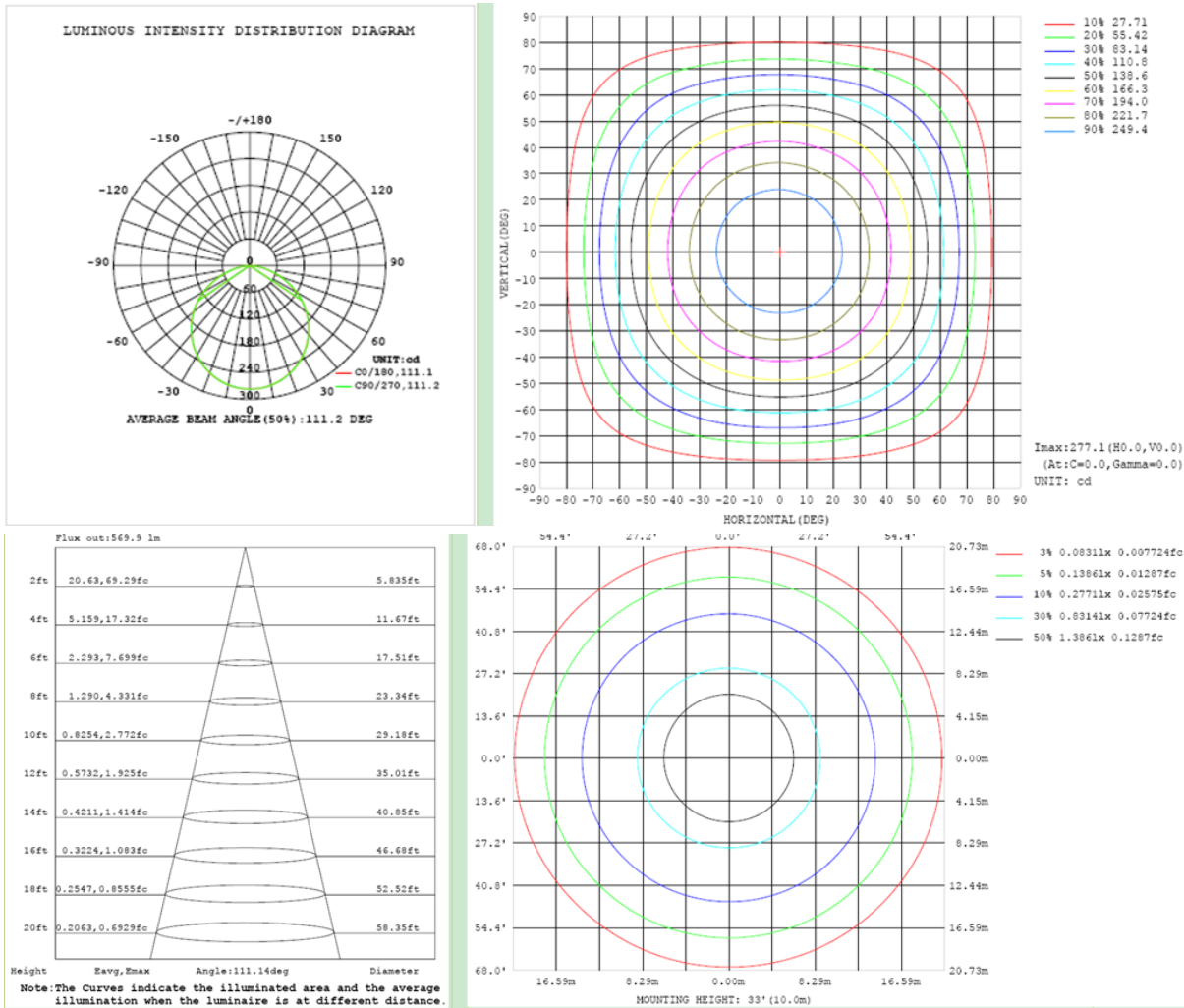


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	214.5	27.7%
0-40	350.6	45.3%
0-60	617.3	79.7%
60-90	157.2	20.3%
70-100	63.8	8.2%
90-120	0.0	0.0%
0-90	774.5	100.0%
90-180	0.0	0.0%
0-180	774.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	26.2	3.4%	90-100	0.0	0.0%
10-20	75.0	9.7%	100-110	0.0	0.0%
20-30	113.3	14.6%	110-120	0.0	0.0%
30-40	136.1	17.6%	120-130	0.0	0.0%
40-50	140.6	18.2%	130-140	0.0	0.0%
50-60	126.0	16.3%	140-150	0.0	0.0%
60-70	93.4	12.1%	150-160	0.0	0.0%
70-80	50.5	6.5%	160-170	0.0	0.0%
80-90	13.3	1.7%	170-180	0.0	0.0%

Photometric Data



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	DLW0075(WFRL4R10.59FA120WB) 3000K		

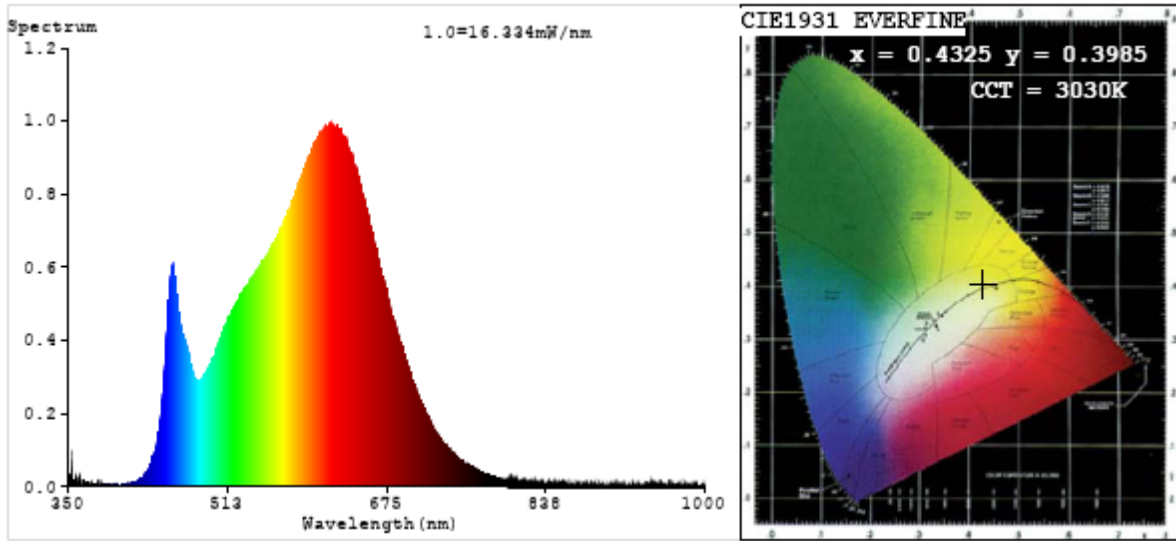
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300005	120.0	60	0.08772	10.34	0.981

Chromaticity Measurement - Sphere-Spectroradiometer Method:

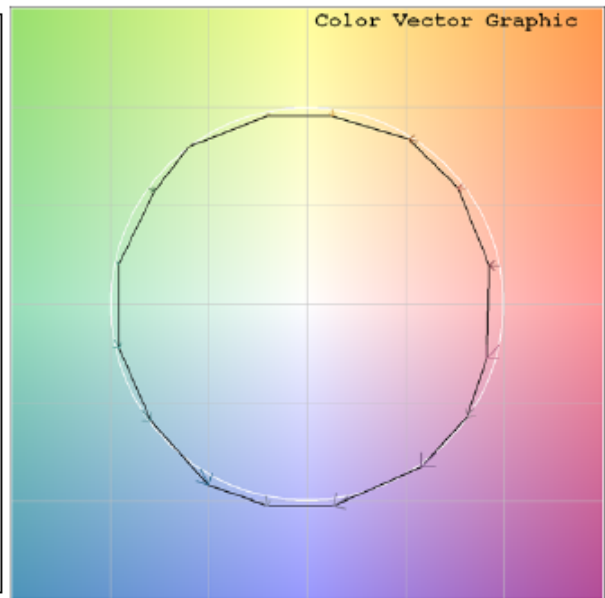
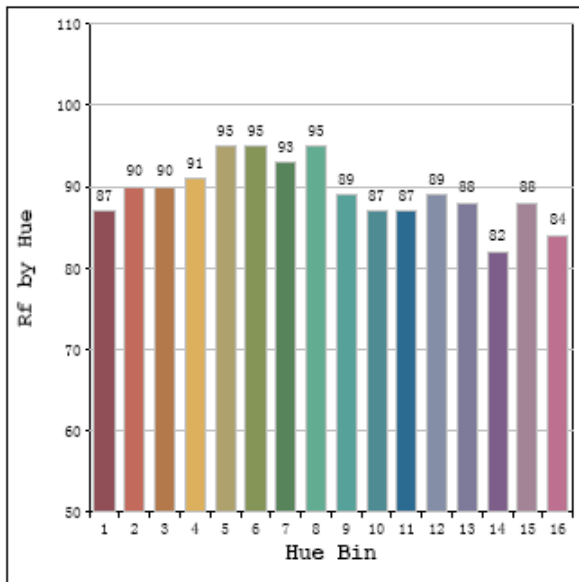
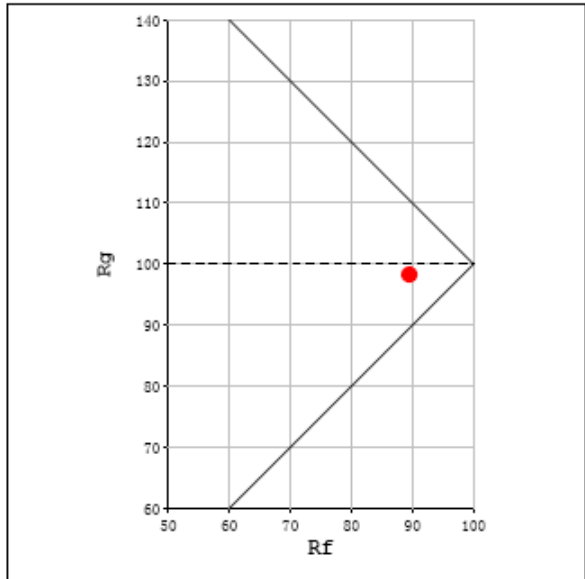
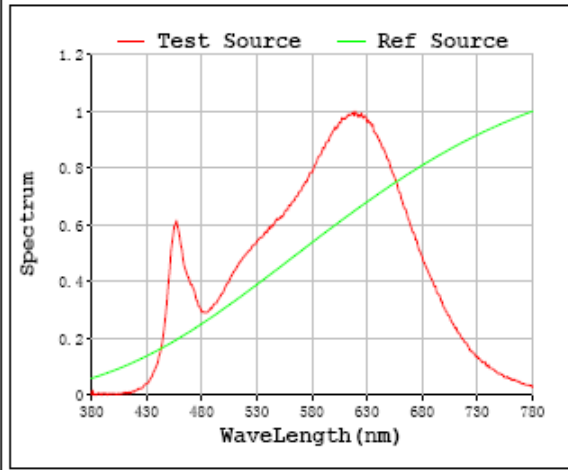
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	94	R9	61
Frequency (Hz)	60	R2	99	R10	97
CCT (K)	3030	R3	97	R11	93
Duv	-0.0016	R4	92	R12	80
Chromaticity (x, y)	x=0.4325 y=0.3985	R5	94	R13	96
Chromaticity (u', v')	u'=0.2501 v'=0.5185	R6	96	R14	99
Color Rendering Index (CRI)	92.9	R7	9	R15	90
R9	61	R8	81	--	--
Total Luminous (lm)	806.7				
Luminous Efficacy (lm/W)	78.05				

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3030 K u': 0.2501
 Rg: 98 Duv: -0.0016 v': 0.5185



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	DLG0010(RA4R89FA120WS)	3500K	

Electrical Measurement:

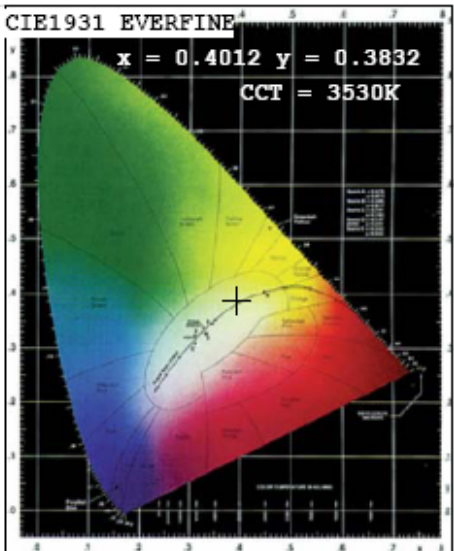
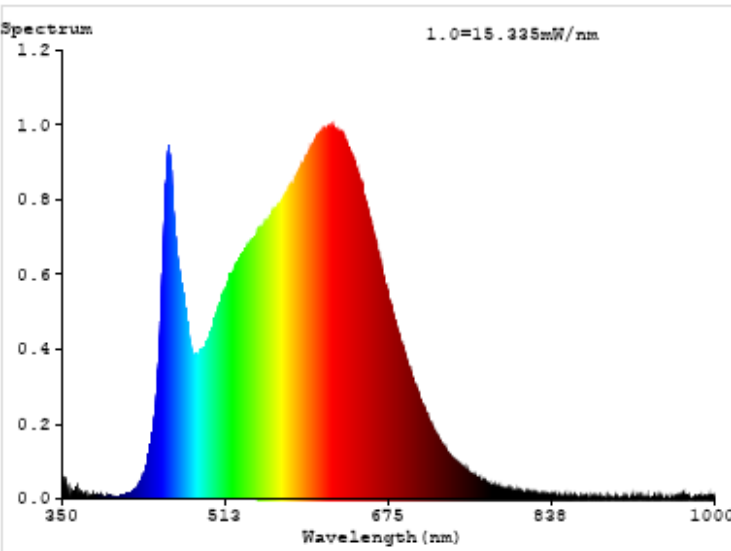
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300005	120.0	60	0.08613	10.14	0.9803

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3530
Duv	-0.0024
Chromaticity (x, y)	x=0.4012 y=0.3832
Chromaticity (u', v')	u'=0.2361 v'=0.5075
Color Rendering Index (CRI)	94.4
R9	72
Total Luminous (lm)	840.4
Luminous Efficacy (lm/W)	82.89

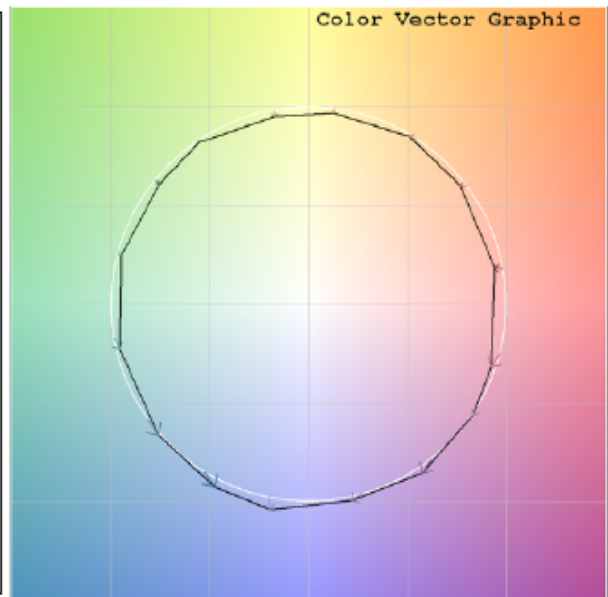
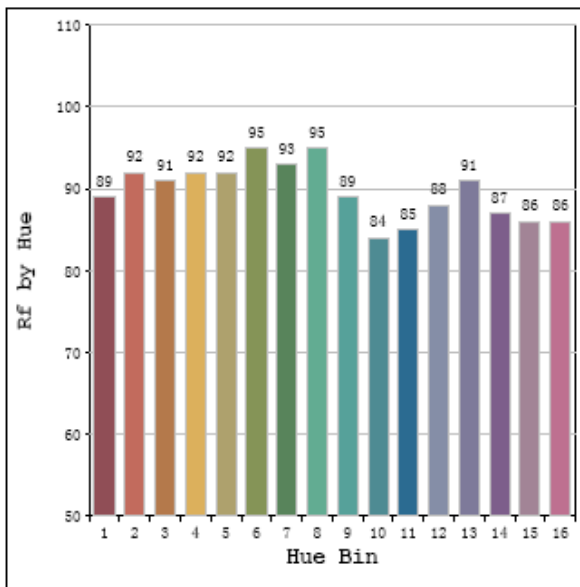
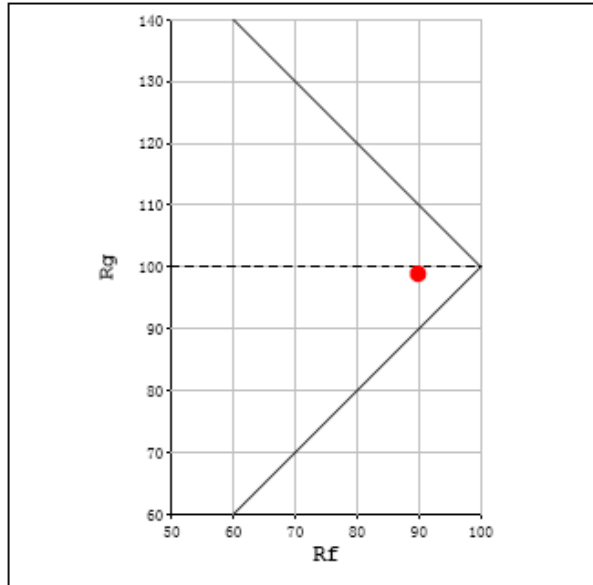
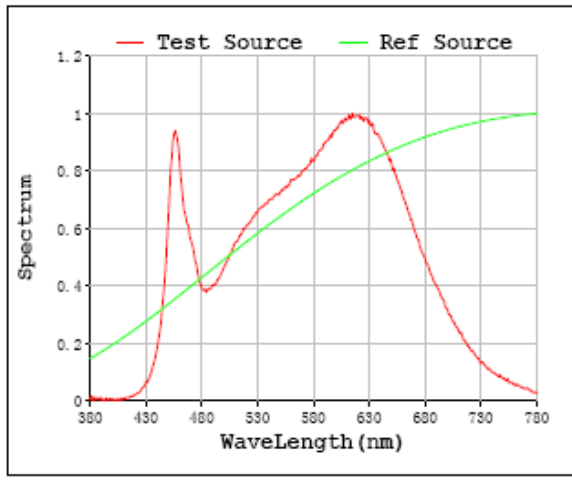
Special Color Rendering Indices			
R1	96	R9	72
R2	99	R10	98
R3	98	R11	94
R4	93	R12	75
R5	95	R13	98
R6	95	R14	100
R7	92	R15	94
R8	86	--	--

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3530 K u': 0.2361
 Rg: 99 Duv: -0.0024 v': 0.5075



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	DLW0075(WFRL4R10.59FA120WB)		4000K

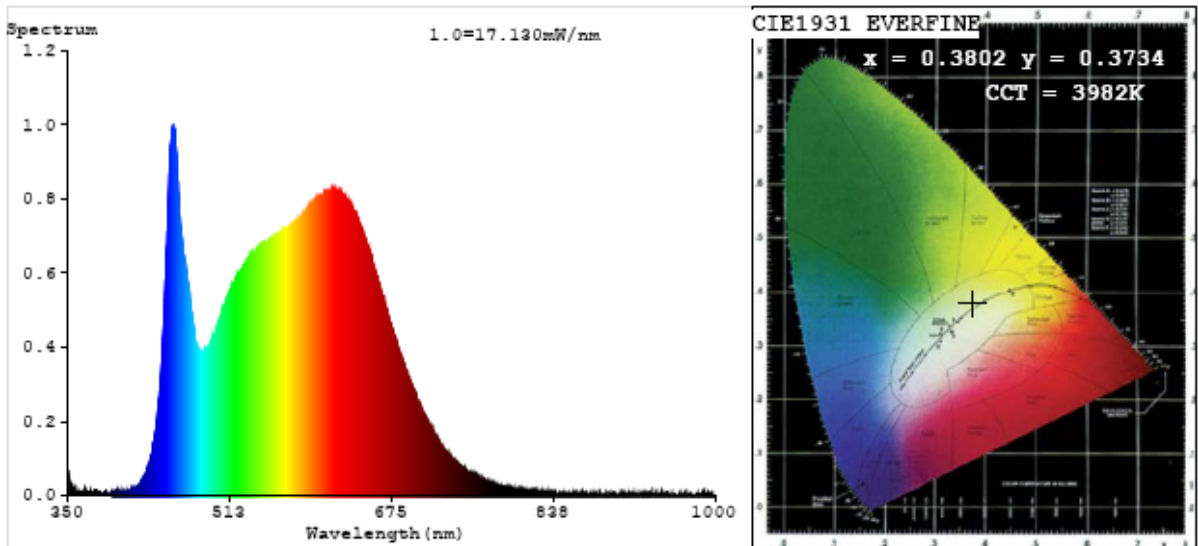
Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300005	120.0	60	0.08651	10.19	0.9805

Chromaticity Measurement - Sphere-Spectroradiometer Method:

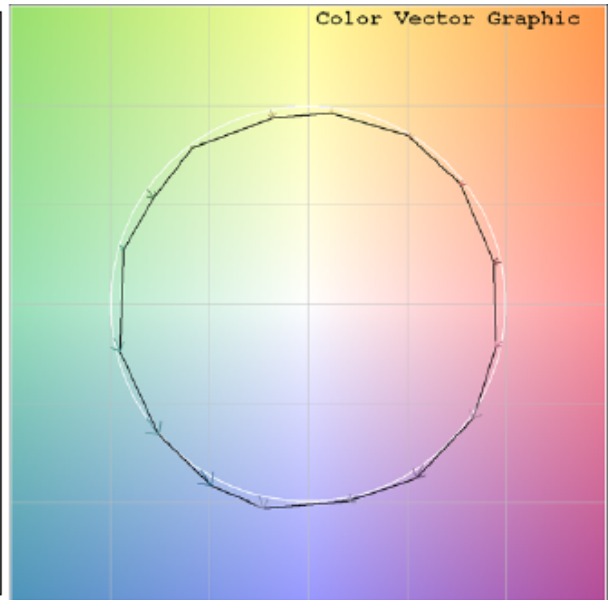
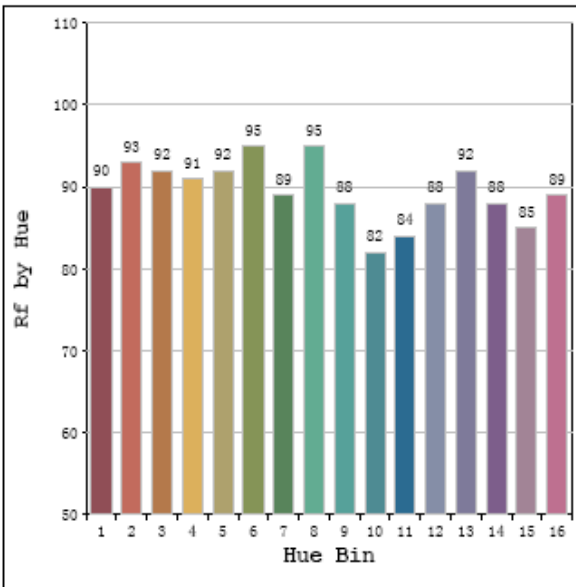
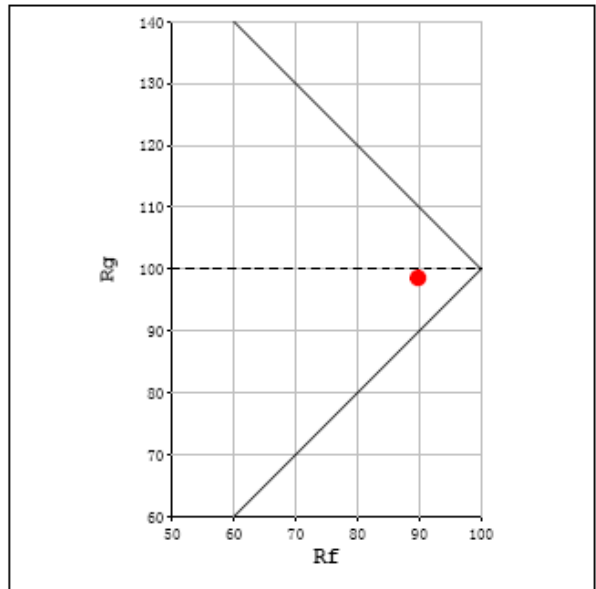
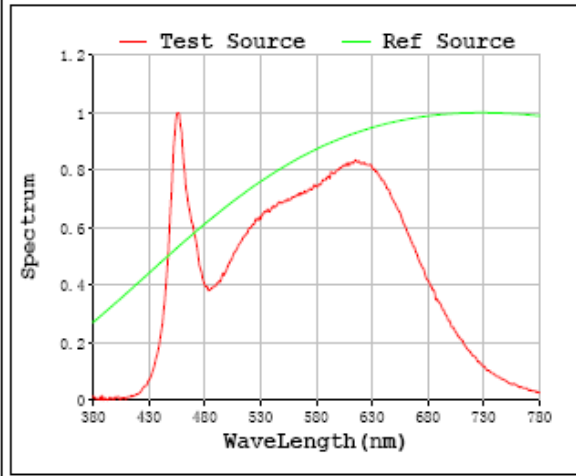
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	96	R9	76
Frequency (Hz)	60	R2	99	R10	96
CCT (K)	3982	R3	98	R11	93
Duv	-0.0015	R4	92	R12	71
Chromaticity (x, y)	x=0.3802 y=0.3734	R5	94	R13	98
Chromaticity (u', v')	u'=0.2263 v'=0.5001	R6	95	R14	99
Color Rendering Index (CRI)	94.6	R7	93	R15	94
R9	76	R8	89	--	--
Total Luminous (lm)	848.5				
Luminous Efficacy (lm/W)	83.29				

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3982 K u': 0.2263
 Rg: 99 Duv: -0.0015 v': 0.5001



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	DLW0075(WFRL4R10.59FA120WB)		5000K

Electrical Measurement:

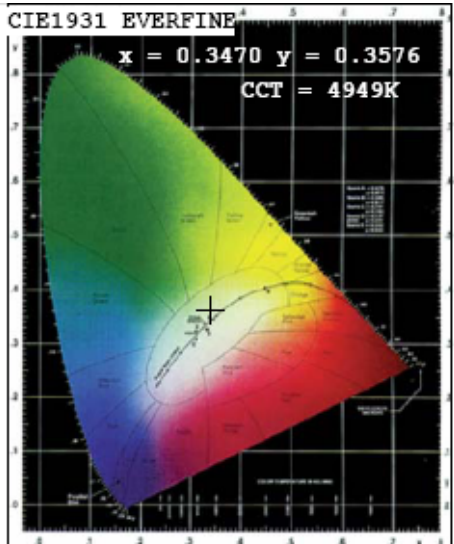
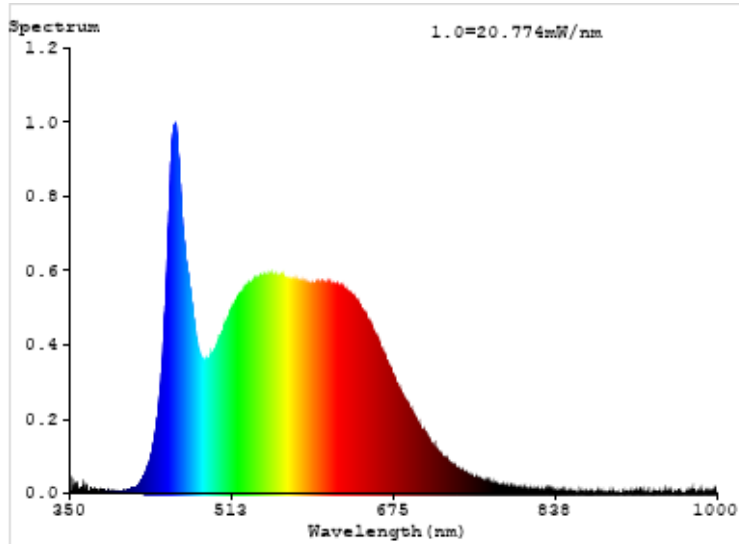
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202108300005	120.0	60	0.0882	10.39	0.9812

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4949
Duv	0.0022
Chromaticity (x, y)	x=0.3470 y=0.3576
Chromaticity (u', v')	u'=0.2104 v'=0.4879
Color Rendering Index (CRI)	92.6
R9	72
Total Luminous (lm)	825.8
Luminous Efficacy (lm/W)	79.45

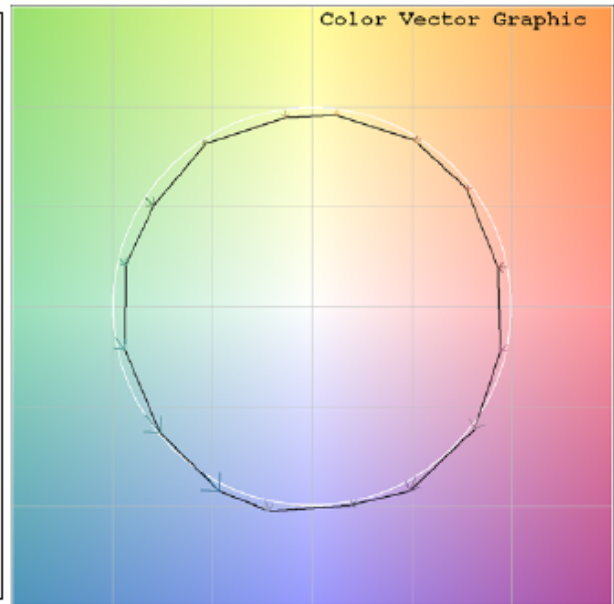
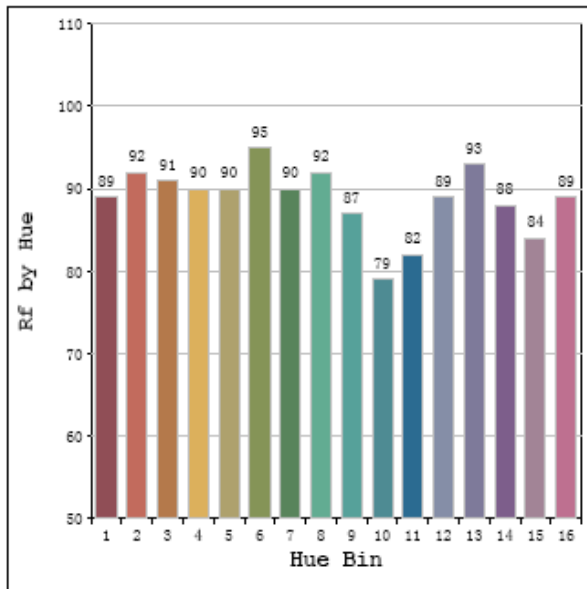
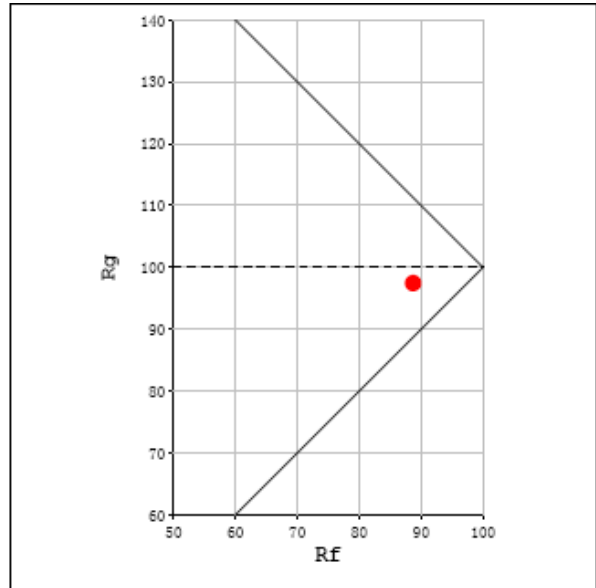
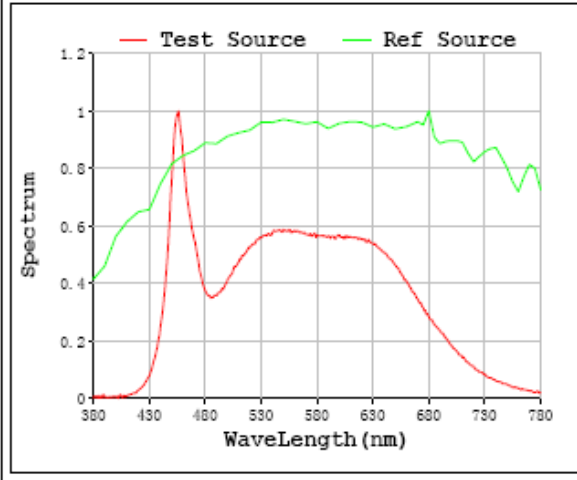
Special Color Rendering Indices			
R1	93	R9	72
R2	97	R10	90
R3	97	R11	89
R4	89	R12	63
R5	90	R13	95
R6	93	R14	98
R7	93	R15	91
R8	88	--	--

Spectral Power Distribution & Chromaticity Diagram



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Rf: 89 CCT: 4949 K u': 0.2104
 Rg: 97 Duv: 0.0022 v': 0.4879



Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DLW0075(WFRL4R10.59FA120WB)	2700K setting	120.0	774.5	10.40	74.47
	3000K setting	120.0	806.7	10.34	78.05
	3500K setting	120.0	840.4	10.14	82.89
	4000K setting	120.0	848.5	10.19	83.29
	5000K setting	120.0	825.8	10.39	79.45

3. Product Photo



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