

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):
DLC0037(C3R5.5/7/8.59FAUNVM)

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

**Type of
Luminaire:** Downlights

Report Date: 2020-09-10

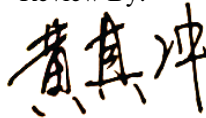
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120V-277Vac, 60 Hz
Nominal Power	5.5 W /7.0 W /8.5W
Rated Initial Lamp Lumen	380 lm /500 lm /600 lm
Declared CCT	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	2020-09-10	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0037(C3R5.5/7/8.59FAUNVM) 3000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009090003	120.0	60	0.068	8.26	0.998

Chromaticity Measurement - Sphere-Spectroradiometer Method:

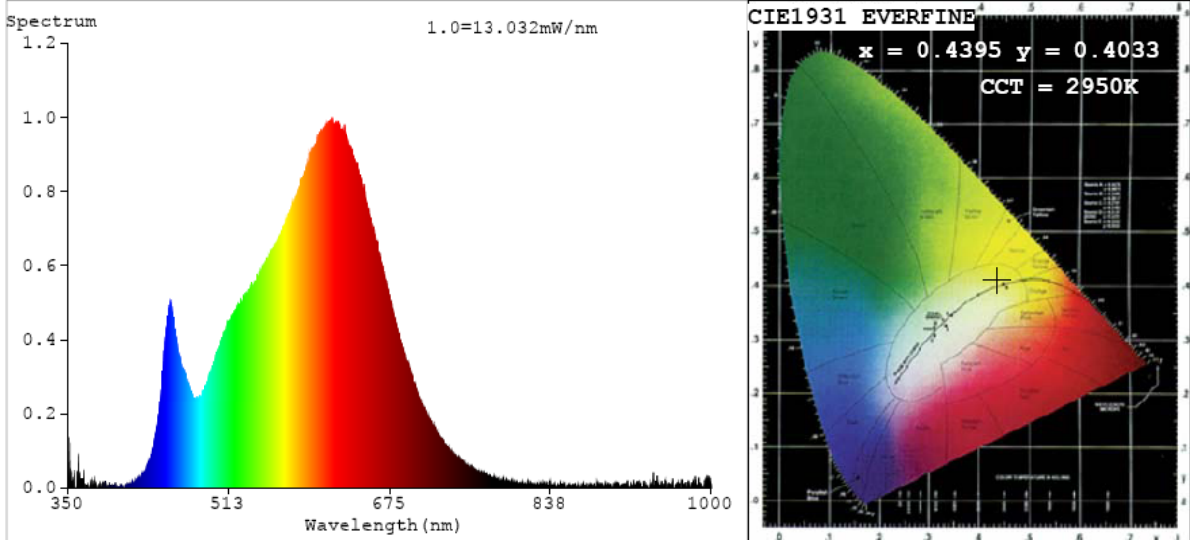
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	92	R9	53
Frequency (Hz)	60	R2	97	R10	92
CCT (K)	2950	R3	98	R11	93
Duv	0.0007	R4	91	R12	82
Chromaticity (x, y)	x=0.4395 y=0.4033	R5	92	R13	94
Chromaticity (u', v')	u'=0.2526 v'=0.5215	R6	96	R14	100
Color Rendering Index (CRI)	92.0	R7	90	R15	88
R9	53	R8	79	--	--

Photometric Measurement – Goniophotometer Method:

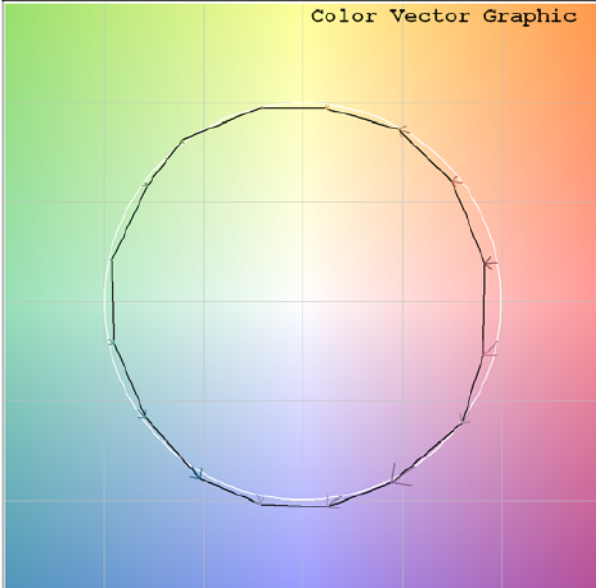
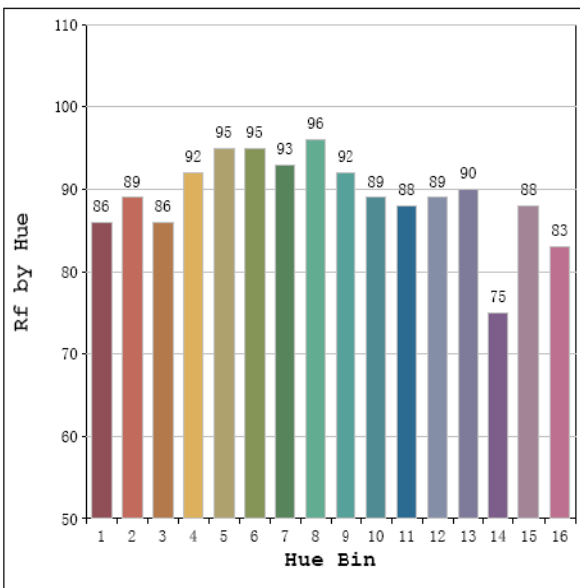
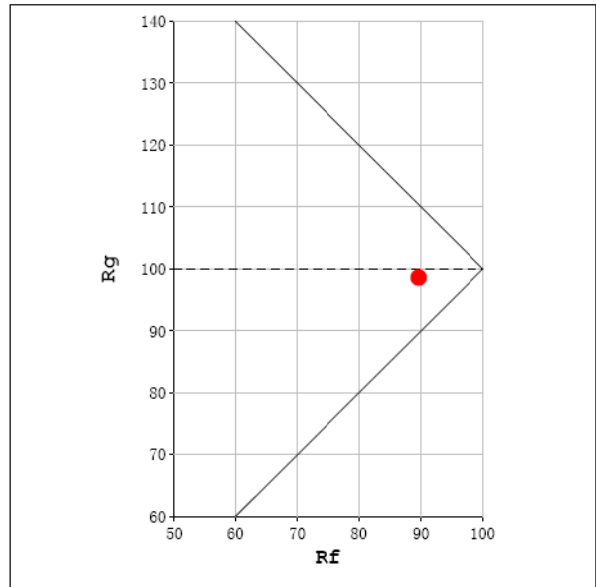
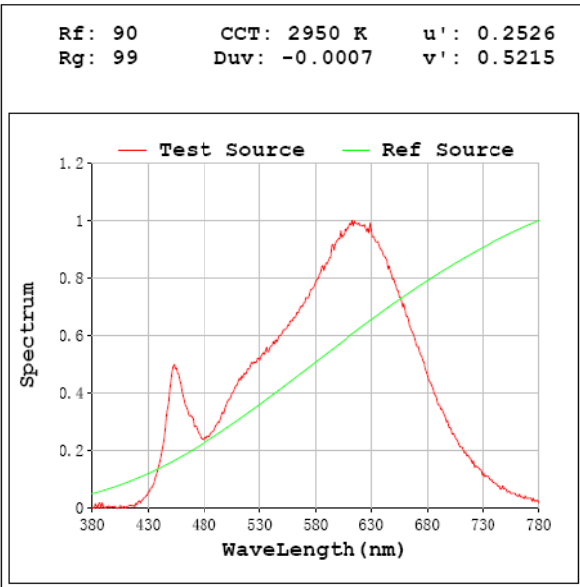
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	628.52
Luminous Efficacy (lm/W)	76.09
Beam Angle (°)	62.5
Center Beam Candle Power (cd)	575.8

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	631.1
Luminous Efficacy (lm/W)	74.33

Spectral Power Distribution & Chromaticity Diagram



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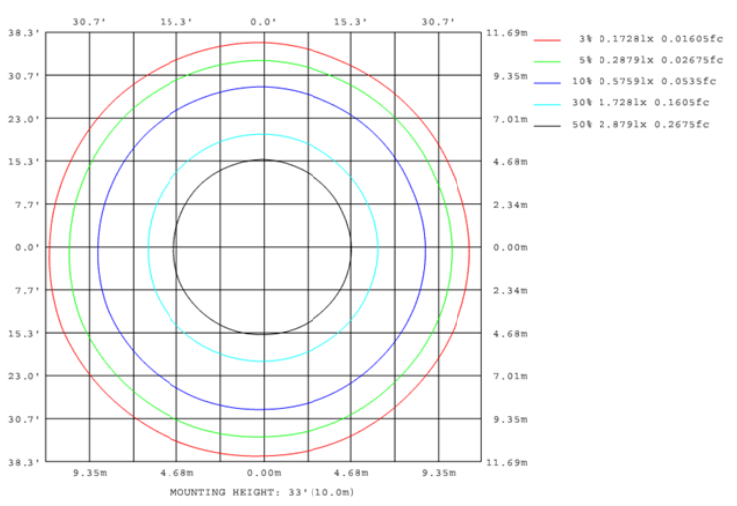
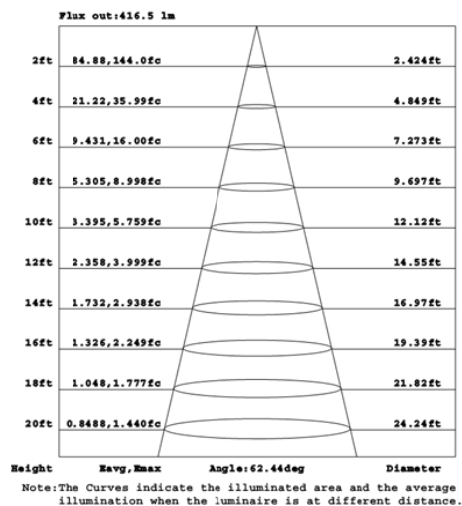
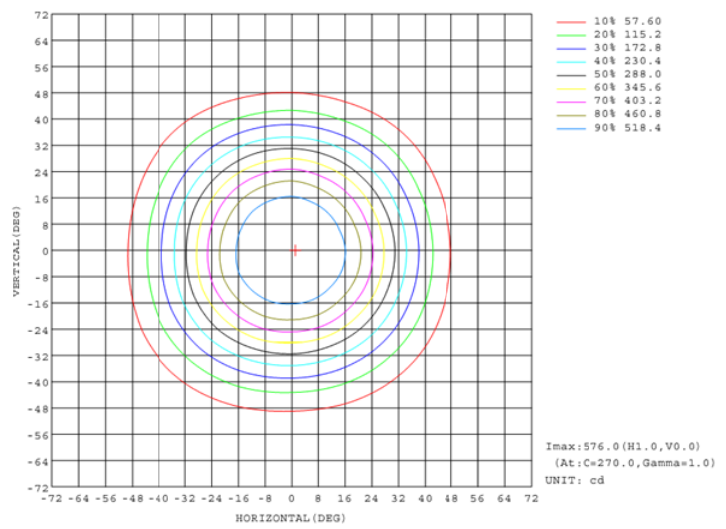
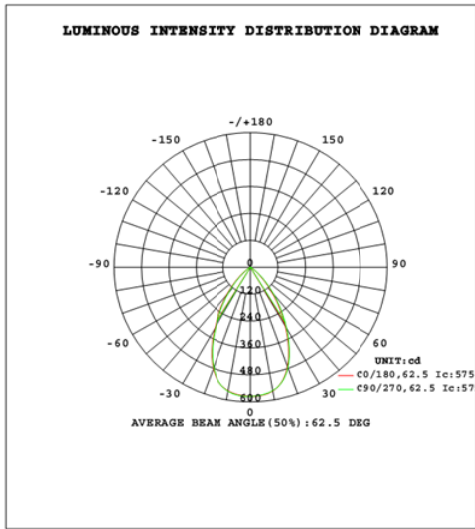


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	383.5	61.0%
0-40	524.8	83.5%
0-60	614.8	97.8%
60-90	13.7	2.2%
70-100	7.8	1.2%
90-120	0.0	0.0%
0-90	628.5	100.0%
90-180	0.0	0.0%
0-180	628.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	54.3	8.6%	90-100	0.0	0.0%
10-20	147.9	23.5%	100-110	0.0	0.0%
20-30	181.4	28.9%	110-120	0.0	0.0%
30-40	141.3	22.5%	120-130	0.0	0.0%
40-50	71.8	11.4%	130-140	0.0	0.0%
50-60	18.3	2.9%	140-150	0.0	0.0%
60-70	6.0	0.9%	150-160	0.0	0.0%
70-80	4.4	0.7%	160-170	0.0	0.0%
80-90	3.4	0.5%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-10	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0037(C3R5.5/7/8.59FAUNVM)		3500K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009090003	120.0	60	0.066	7.95	0.997

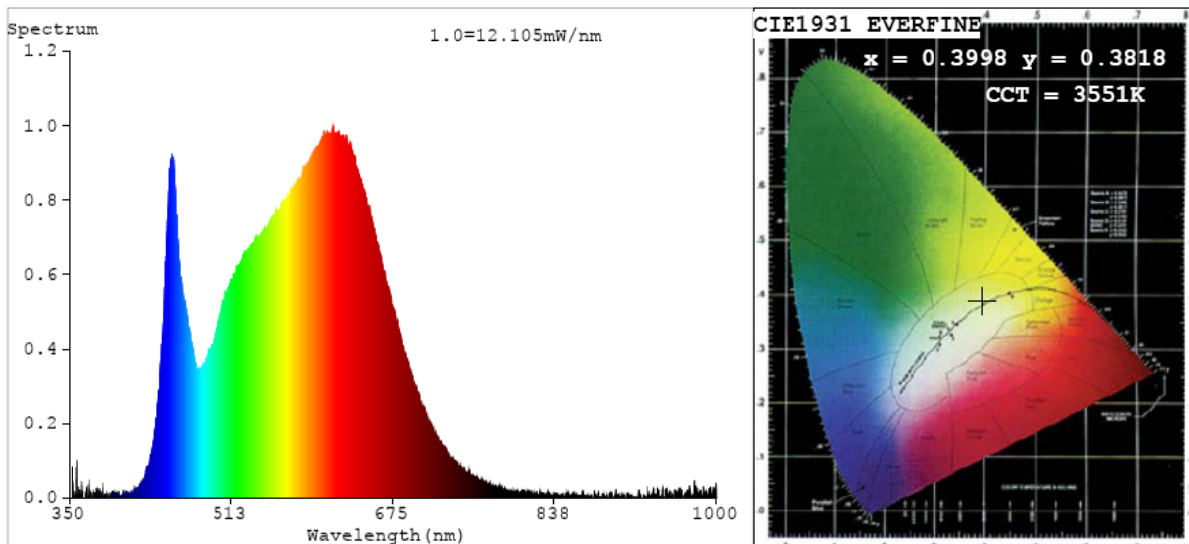
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3551
Duv	0.0027
Chromaticity (x, y)	x=0.3998 y=0.3818
Chromaticity (u', v')	u'=0.258 v'=0.5066
Color Rendering Index (CRI)	93.9
R9	67
Total Luminous (lm)	662.5
Luminous Efficacy (lm/W)	83.31

Special Color Rendering Indices			
R1	95	R9	67
R2	98	R10	93
R3	98	R11	94
R4	93	R12	76
R5	94	R13	96
R6	95	R14	99
R7	93	R15	92
R8	85	--	--

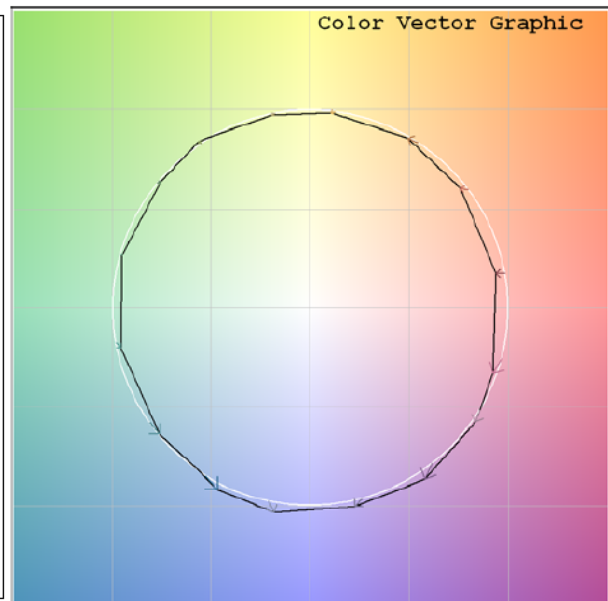
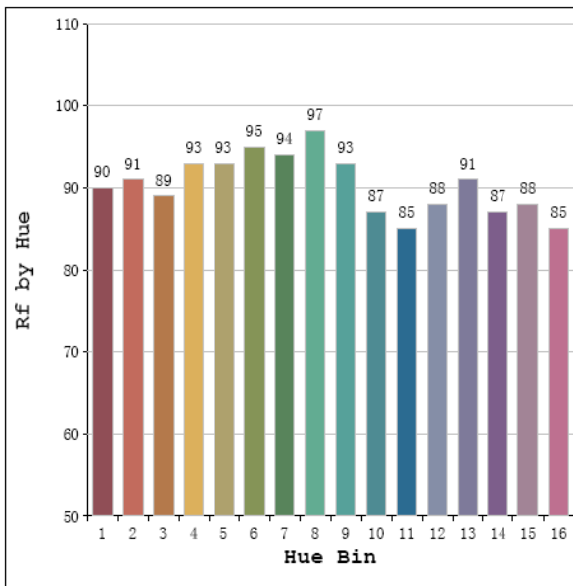
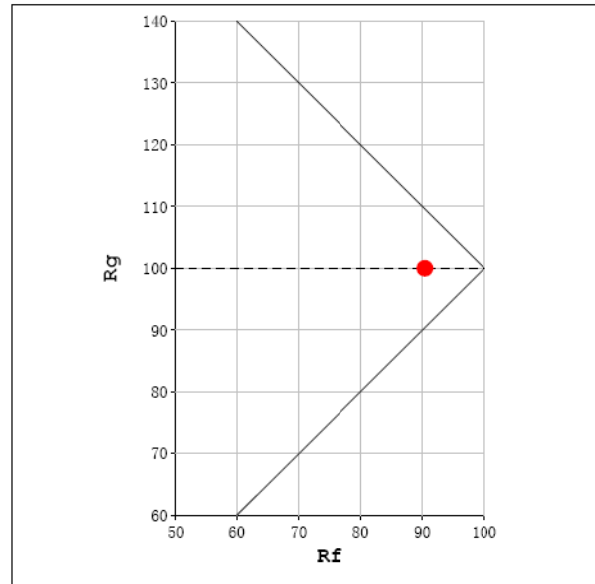
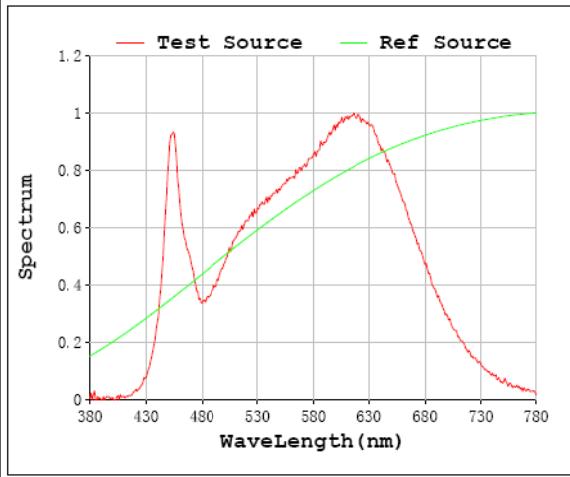
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	661.8
Luminous Efficacy (lm/W)	80.72

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3551 K u': 0.2358
 Rg: 100 Duv: -0.0027 v': 0.5066



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-10	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0037(C3R5.5/7/8.59FAUNVM)		4000K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009090003	120.0	60	0.067	7.98	0.997

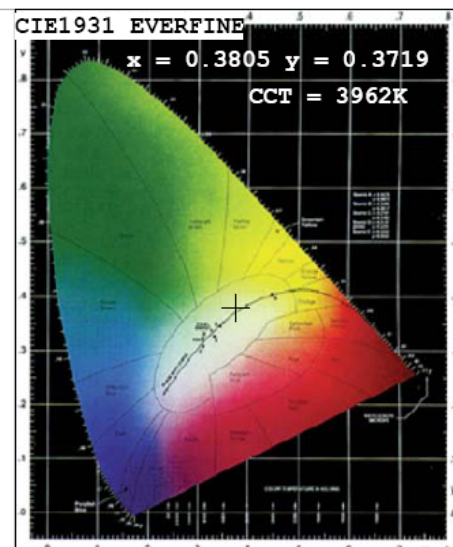
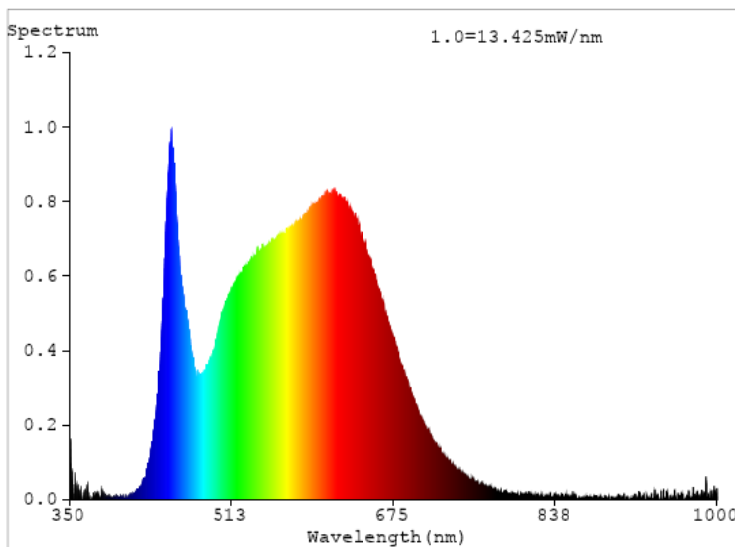
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3962
Duv	0.0023
Chromaticity (x, y)	x=0.3805 y=0.3719
Chromaticity (u', v')	u'=0.2271 v'=0.4994
Color Rendering Index (CRI)	93.9
R9	70
Total Luminous (lm)	661.6
Luminous Efficacy (lm/W)	82.91

Special Color Rendering Indices			
R1	95	R9	70
R2	97	R10	91
R3	97	R11	94
R4	94	R12	73
R5	94	R13	96
R6	94	R14	98
R7	94	R15	93
R8	87	--	--

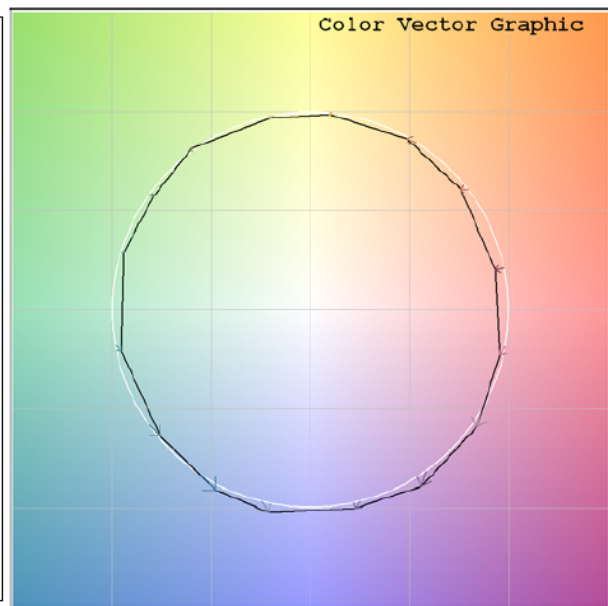
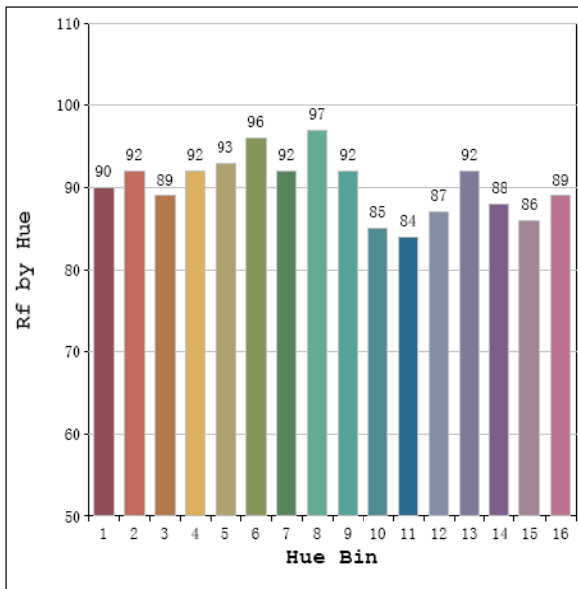
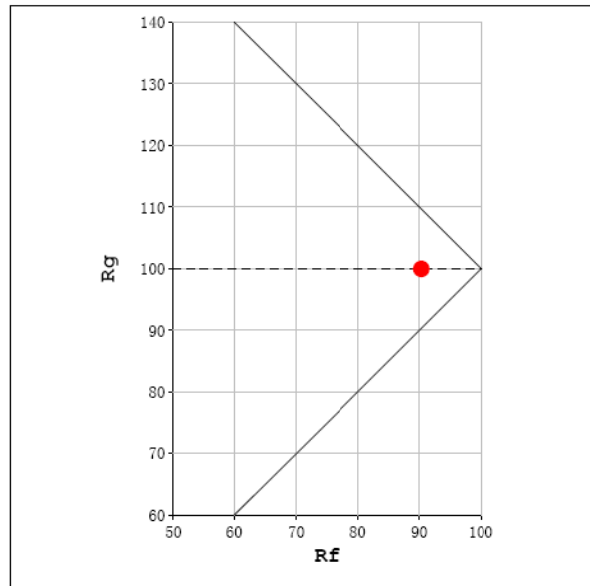
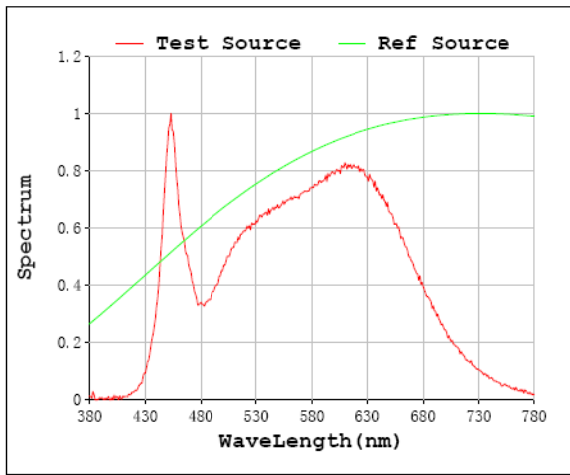
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	662.6
Luminous Efficacy (lm/W)	80.55

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3962 K u': 0.2271
 Rg: 100 Duv: -0.0023 v': 0.4994



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-10	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0037(C3R5.5/7/8.59FAUNVM) 5000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009090003	120.0	60	0.069	8.22	0.997

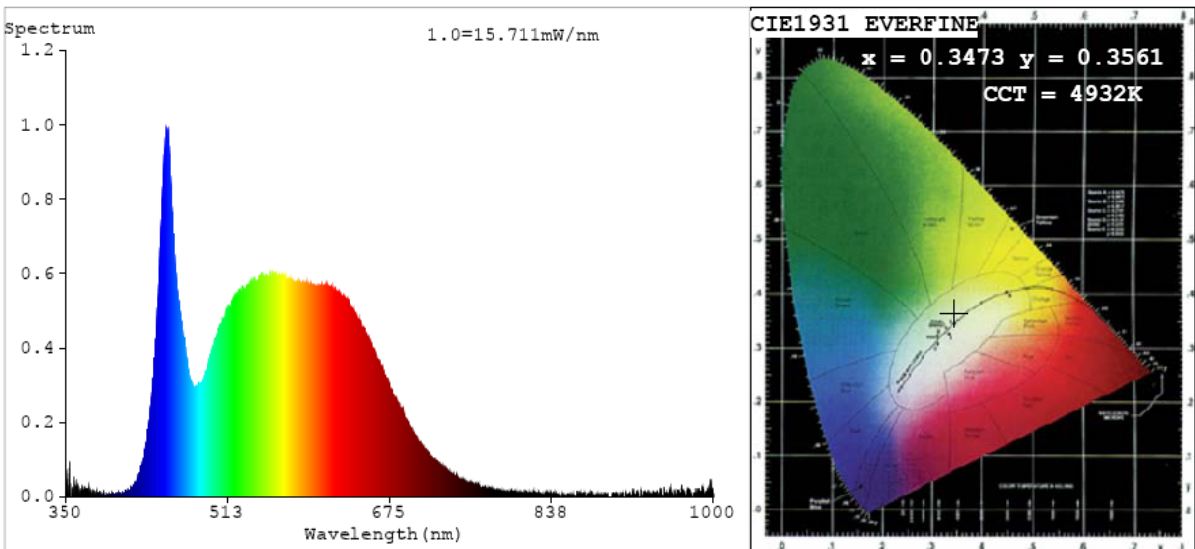
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4932
Duv	0.0014
Chromaticity (x, y)	x=0.3473 y=0.3561
Chromaticity (u', v')	u'=0.2122 v'=0.4872
Color Rendering Index (CRI)	91.2
R9	63
Total Luminous (lm)	628.6
Luminous Efficacy (lm/W)	76.45

Special Color Rendering Indices			
R1	91	R9	63
R2	93	R10	83
R3	93	R11	90
R4	91	R12	65
R5	90	R13	92
R6	89	R14	96
R7	95	R15	90
R8	87	--	--

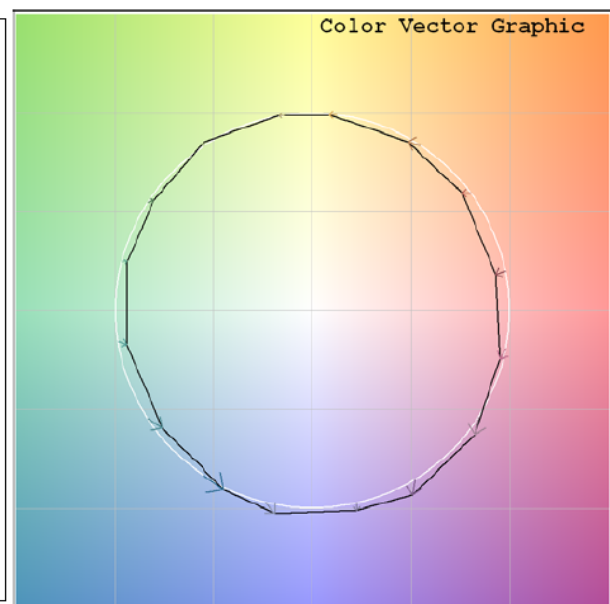
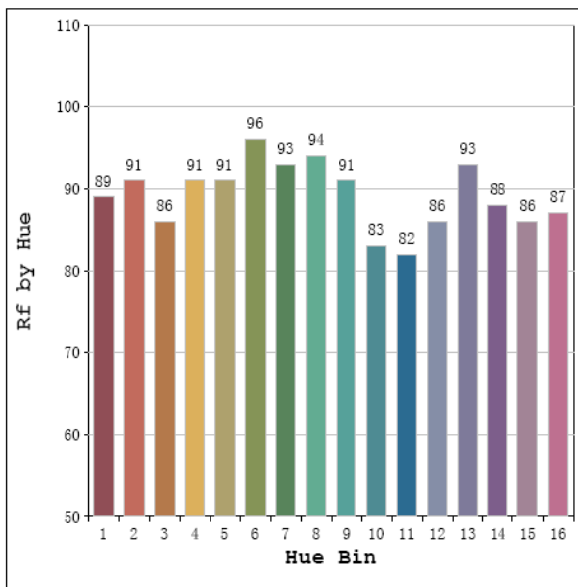
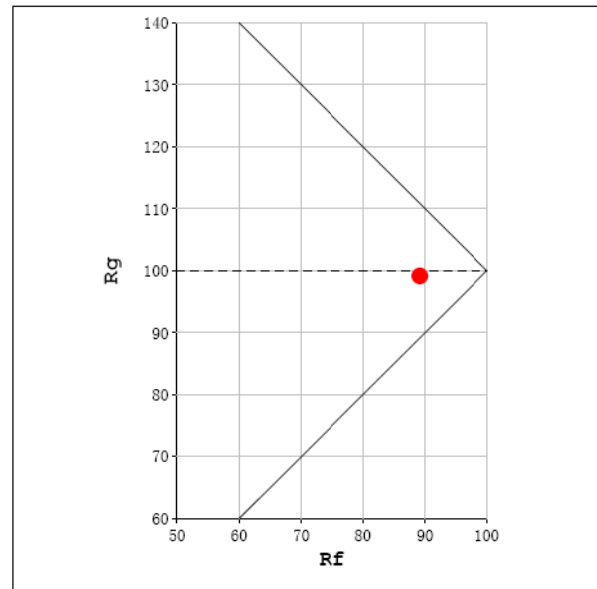
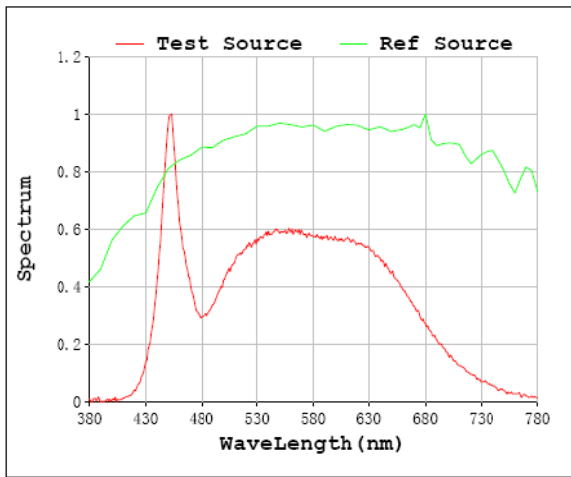
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	628.7
Luminous Efficacy (lm/W)	74.05

Spectral Power Distribution & Chromaticity Diagram



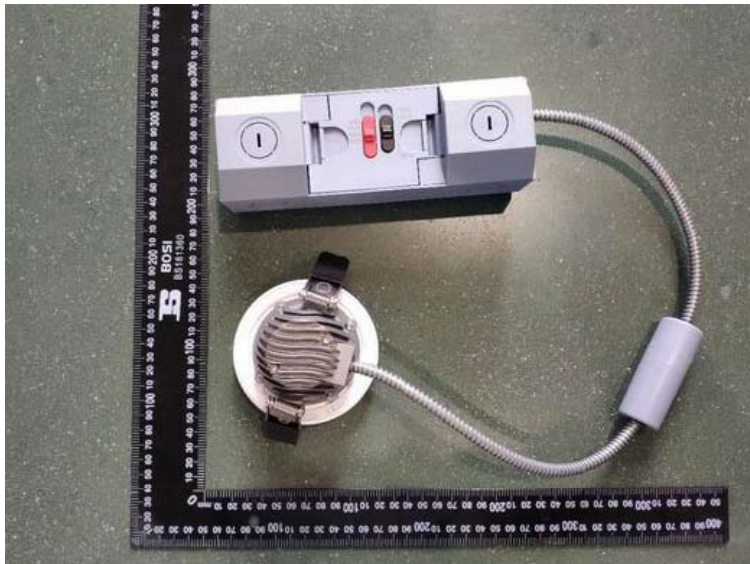
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Rf: 89 CCT: 4932 K u': 0.2112
 Rg: 99 Duv: 0.0014 v': 0.4872



Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DLC0037(C3R5.5/7/8.59FAUNVM)	5.5W 3000K setting	120.0	407.9	5.19	78.60
		277.0	408.4	5.49	74.39
	7.0W 3000K setting	120.0	525.7	6.77	77.71
		277.0	526.9	6.95	75.80
	8.5W 3000K setting	120.0	629.0	8.24	76.32
		277.0	631.1	8.49	74.33
	8.5W 3500K setting	120.0	662.5	7.95	83.31
		277.0	661.8	8.20	80.72
	8.5W 4000K setting	120.0	661.6	7.98	82.91
		277.0	662.6	8.23	80.55
	8.5W 5000K setting	120.0	628.6	8.22	76.45
		277.0	628.7	8.49	74.05

3. Product Photo



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