

**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):**  
**DLC0039(C4R8/10/119FAUNVM)**

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

**Type of  
Luminaire:** Downlights

**Report Date:** 2020-09-10

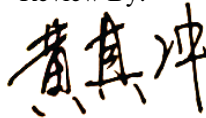
**Prepared By:**

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

<b>1.1 Rated Values:</b>	
Rated Voltage / Frequency	120V-277Vac, 60 Hz
Nominal Power	8.0W /10.0 W /11.0W
Rated Initial Lamp Lumen	500 lm /600 lm /700 lm
Declared CCT	3000K/3500K/4000K/5000K

### 1.2 Test Specifications:

Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Correlated Color Temperature</li> <li>5. Color Rendering Index</li> <li>6. Chromaticity Coordinate</li> <li>7. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
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

<b>Test date</b>	2020-09-10	<b>Test Ambient:</b>	25.3 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	DLC0039(C4R8/10/119FAUNVM)	3000K	

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	Power Factor
202008310007	120.0	60	0.090	10.70	0.998

### Chromaticity Measurement - Sphere-Spectroradiometer Method:

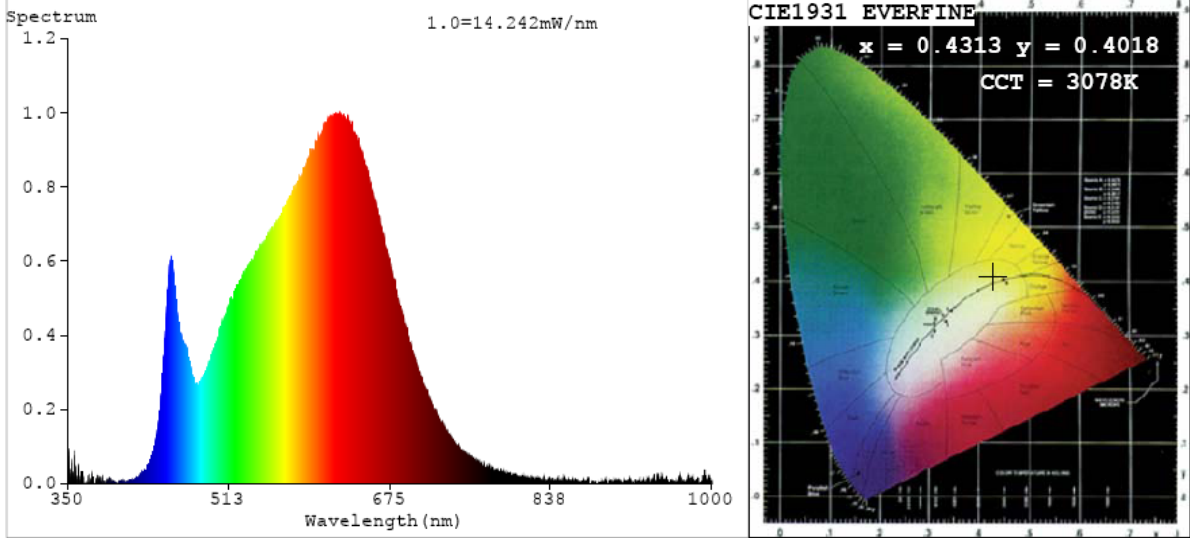
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	94	R9	66
Frequency (Hz)	60	R2	98	R10	93
CCT (K)	3078	R3	99	R11	93
Duv	0.0001	R4	93	R12	78
Chromaticity (x, y)	x=0.4313 y=0.4018	R5	93	R13	95
Chromaticity (u', v')	u'=0.2479 v'=0.5197	R6	96	R14	99
Color Rendering Index (CRI)	93.8	R7	93	R15	91
R9	66	R8	85	--	--

### Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	722.37
Luminous Efficacy (lm/W)	67.51
Beam Angle (°)	62.6
Center Beam Candle Power (cd)	666.3

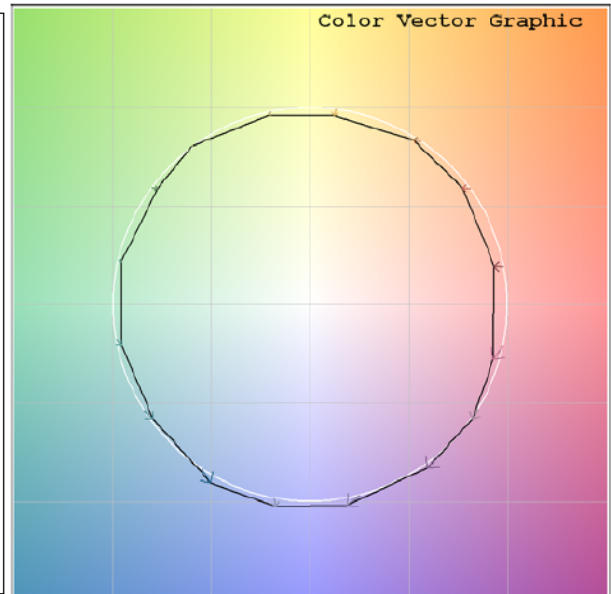
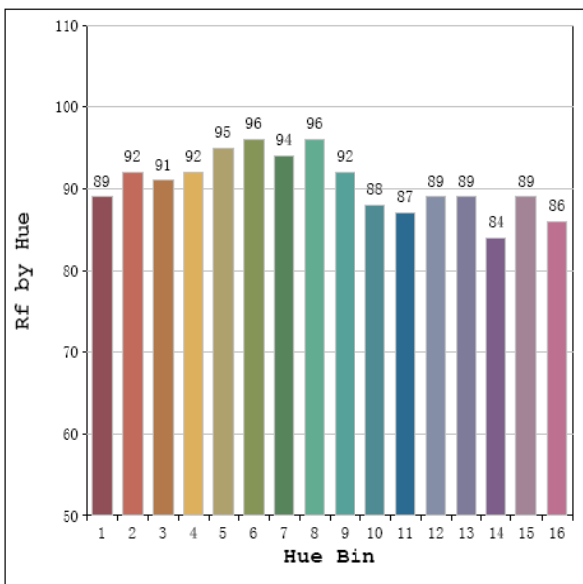
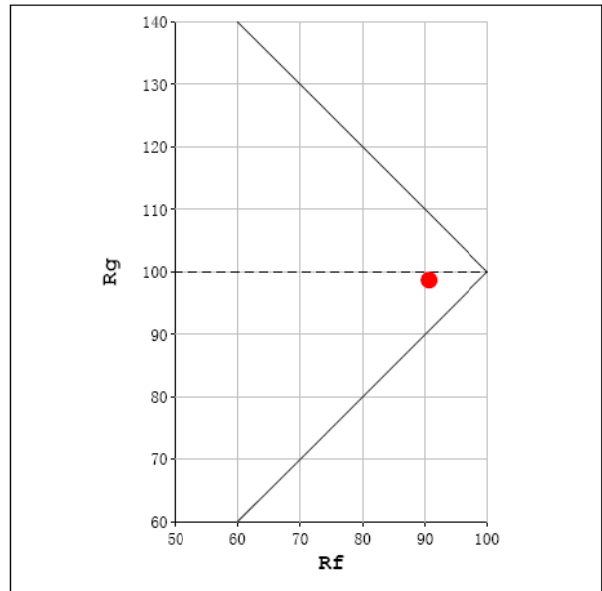
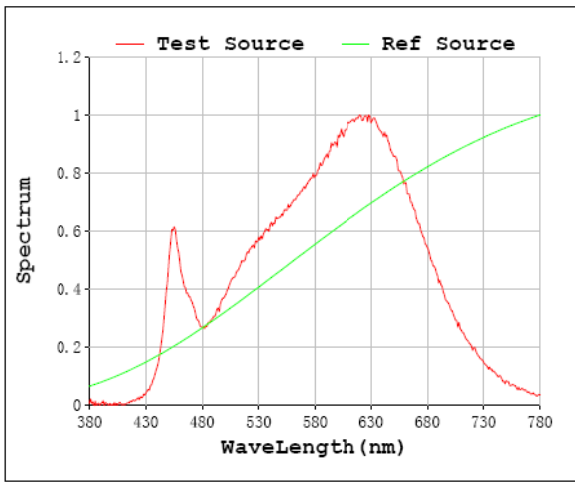
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	722.9
Luminous Efficacy (lm/W)	65.90

# Spectral Power Distribution & Chromaticity Diagram



## T30

Rf: 91 CCT: 3078 K u': 0.2479  
Rg: 99 Duv: -0.0001 v': 0.5197



# Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	442.1	61.2%
0-40	603.5	83.5%
0-60	702.8	97.3%
60-90	19.6	2.7%
70-100	9.9	1.4%
90-120	0.0	0.0%
0-90	722.4	100.0%
90-180	0.0	0.0%
0-180	722.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	62.5	8.6%	90-100	0.0	0.0%
10-20	169.9	23.5%	100-110	0.0	0.0%
20-30	209.8	29.0%	110-120	0.0	0.0%
30-40	161.4	22.3%	120-130	0.0	0.0%
40-50	76.8	10.6%	130-140	0.0	0.0%
50-60	22.5	3.1%	140-150	0.0	0.0%
60-70	9.7	1.3%	150-160	0.0	0.0%
70-80	5.8	0.8%	160-170	0.0	0.0%
80-90	4.1	0.6%	170-180	0.0	0.0%

## Photometric Data

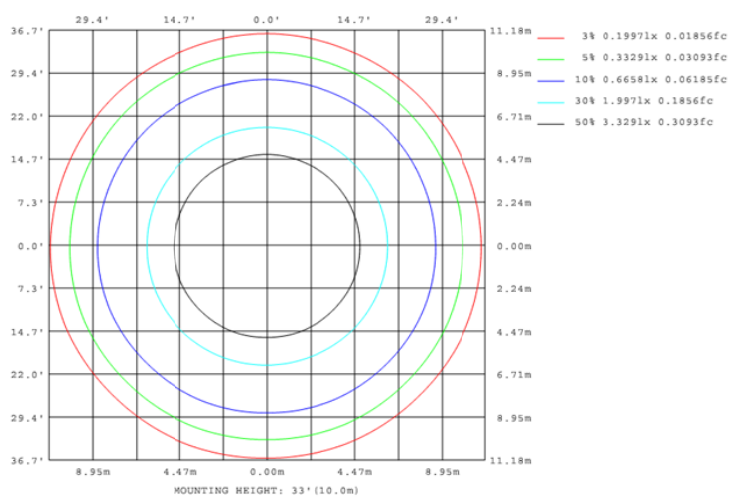
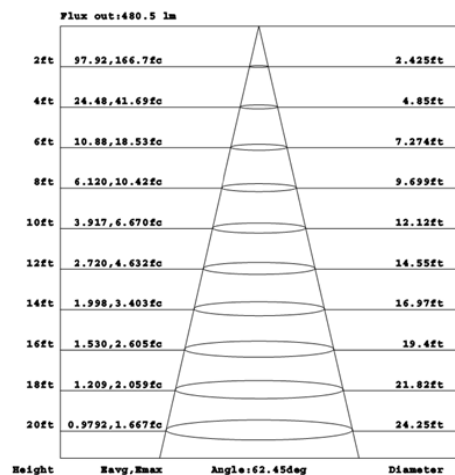
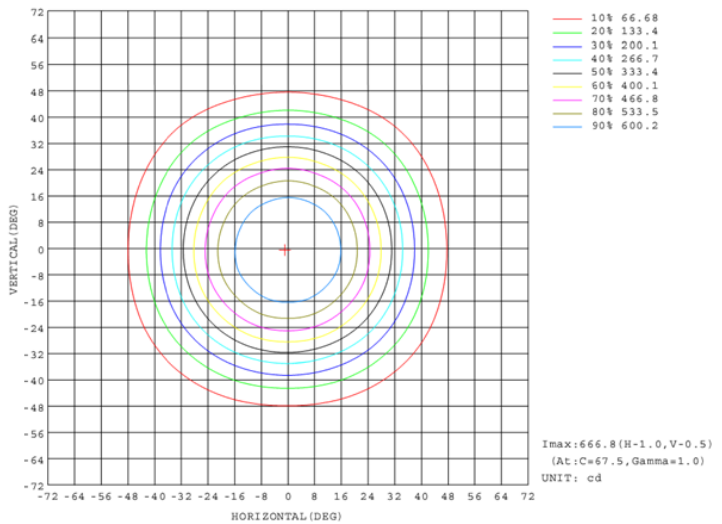
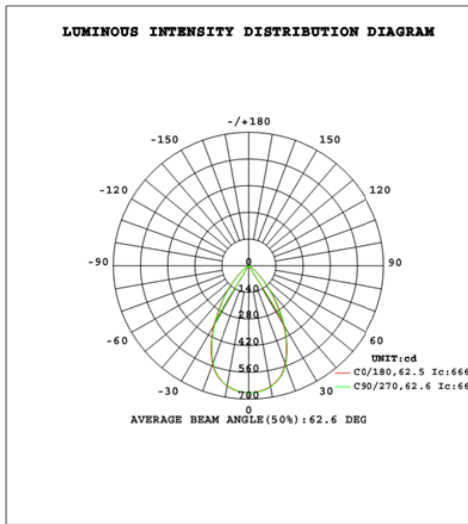


Table--1

UNIT: cd

C (DEG) γ (DEG)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5				
0		666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666				
5		660	662	662	663	662	663	662	662	660	659	659	659	659	659	659	659				
10		642	644	645	646	645	646	645	644	642	640	640	639	639	639	640	640				
15		609	612	612	614	613	614	612	611	608	606	606	604	605	604	606	606				
20		547	551	552	555	554	556	553	554	550	546	545	542	543	541	544	544				
25		458	464	464	469	467	471	469	469	464	459	459	454	455	452	454	454				
30		357	363	363	369	368	372	369	370	365	360	359	354	355	351	354	352				
35		254	258	263	264	267	267	267	265	262	259	255	255	251	252	251	252				
40		163	168	172	175	175	176	175	175	172	169	167	163	164	162	163	161				
45		94.6	97.2	97.5	101	100	102	101	103	100	97.4	96.8	93.9	95.2	93.2	93.6	92.3				
50		46.0	47.4	46.7	48.1	47.8	49.9	49.8	51.1	49.1	47.1	46.9	45.4	45.9	44.6	45.1	44.4				
55		22.3	22.8	22.7	23.4	23.5	24.3	24.2	24.8	23.3	22.4	22.4	21.8	21.9	21.2	21.3	21.0				
60		13.6	13.9	13.9	14.2	14.3	14.6	14.6	14.8	14.0	13.6	13.6	13.3	13.2	12.9	12.9	12.8				
65		9.37	9.53	9.56	9.75	9.78	9.95	9.97	10.1	9.77	9.58	9.52	9.36	9.30	9.14	9.14	9.10				
70		6.81	6.90	6.92	7.04	7.08	7.16	7.17	7.24	7.33	7.22	7.17	7.08	7.06	6.96	6.94	6.93				
75		5.12	5.16	5.20	5.27	5.30	5.33	5.35	5.36	5.74	5.69	5.64	5.63	5.58	5.55	5.53	5.53				
80		4.02	4.02	4.07	4.09	4.12	4.13	4.14	4.13	4.70	4.67	4.64	4.64	4.62	4.62	4.59	4.61				
85		3.31	3.30	3.34	3.33	3.36	3.34	3.36	3.33	4.02	4.03	3.99	4.01	3.98	4.01	3.99	4.02				
90		2.88	2.88	2.90	2.88	2.91	2.89	2.90	2.89	3.69	3.69	3.68	3.69	3.67	3.69	3.67	3.69				

## 2.1.2 Electrical, Photometric and Chromaticity Measurements

<b>Test date</b>	2020-09-10	<b>Test Ambient:</b>	25.3 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	DLC0039(C4R8/10/119FAUNVM)		3500K

### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202008310007	120.0	60	0.089	10.62	0.997

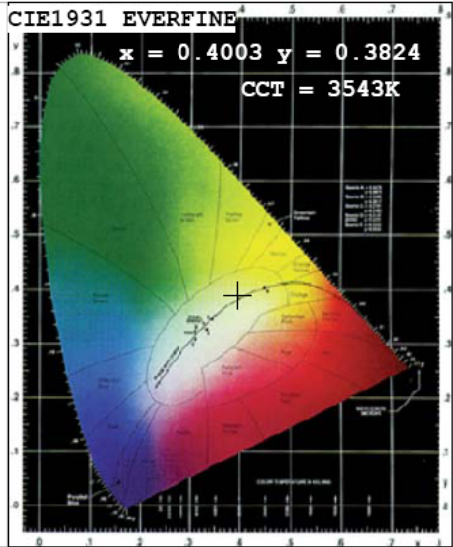
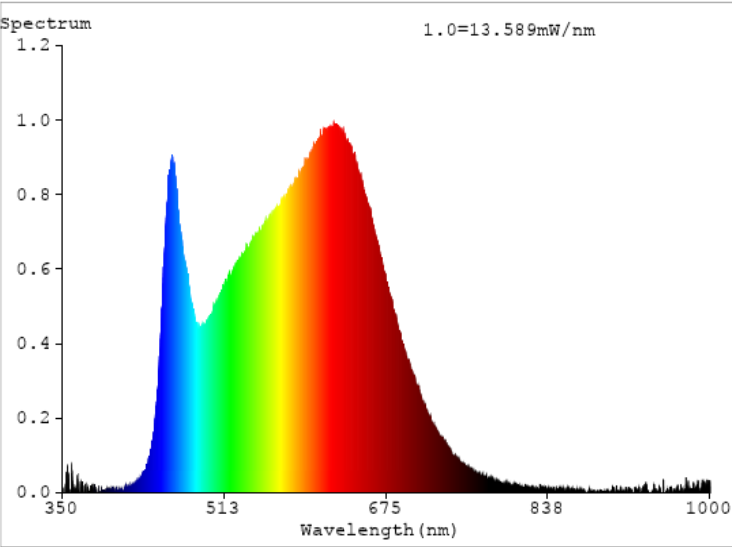
### Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3543
Duv	0.0026
Chromaticity (x, y)	x=0.4003 y=0.3824
Chromaticity (u', v')	u'=0.2359 v'=0.5070
Color Rendering Index (CRI)	93.6
R9	82
Total Luminous (lm)	733.7
Luminous Efficacy (lm/W)	69.06

Special Color Rendering Indices			
R1	98	R9	82
R2	97	R10	95
R3	95	R11	94
R4	92	R12	76
R5	95	R13	98
R6	94	R14	98
R7	90	R15	96
R8	89	--	--

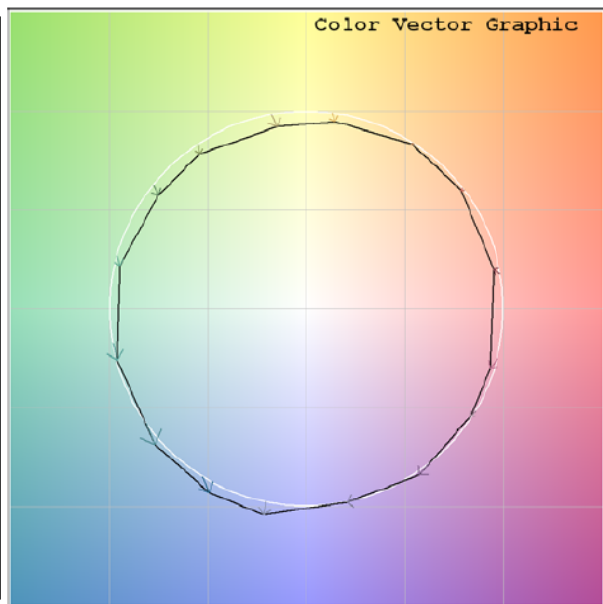
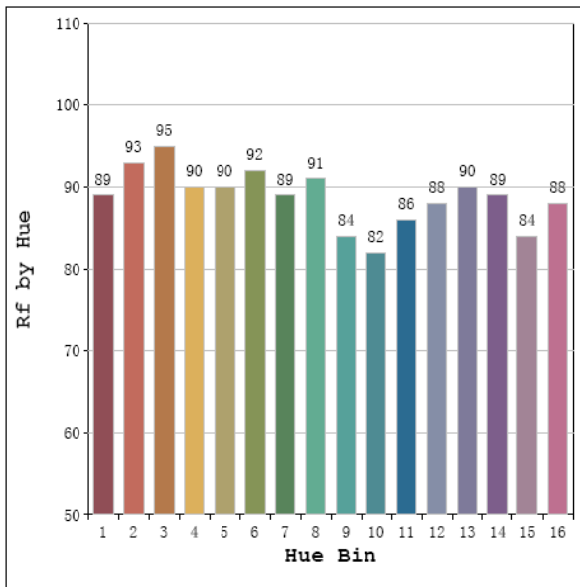
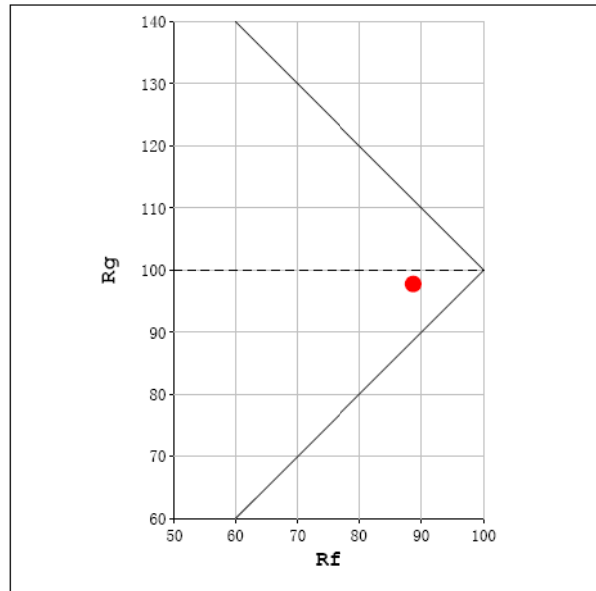
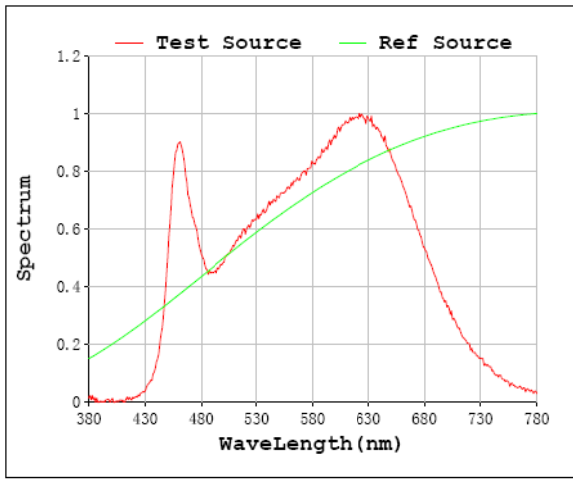
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	732.9
Luminous Efficacy (lm/W)	67.70

## Spectral Power Distribution & Chromaticity Diagram



# T30

Rf: 89      CCT: 3543 K      u': 0.2359  
 Rg: 98      Duv: -0.0026      v': 0.5070





### 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	DLC0039(C4R8/10/119FAUNVM) 4000K		

#### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202008310007	120.0	60	0.087	10.46	0.997

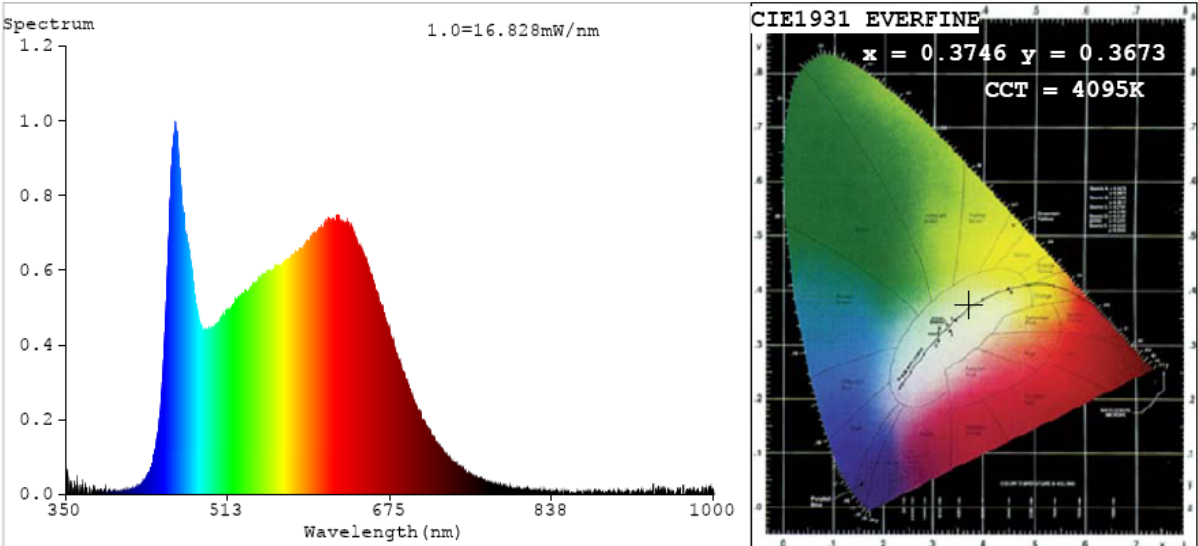
#### Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4095
Duv	0.0027
Chromaticity (x, y)	x=0.3746 y=0.3673
Chromaticity (u', v')	u'=0.2250 v'=-0.4965
Color Rendering Index (CRI)	91.4
R9	92
Total Luminous (lm)	737.3
Luminous Efficacy (lm/W)	70.49

Special Color Rendering Indices			
R1	96	R9	92
R2	93	R10	88
R3	92	R11	92
R4	89	R12	71
R5	93	R13	95
R6	91	R14	97
R7	88	R15	94
R8	89	--	--

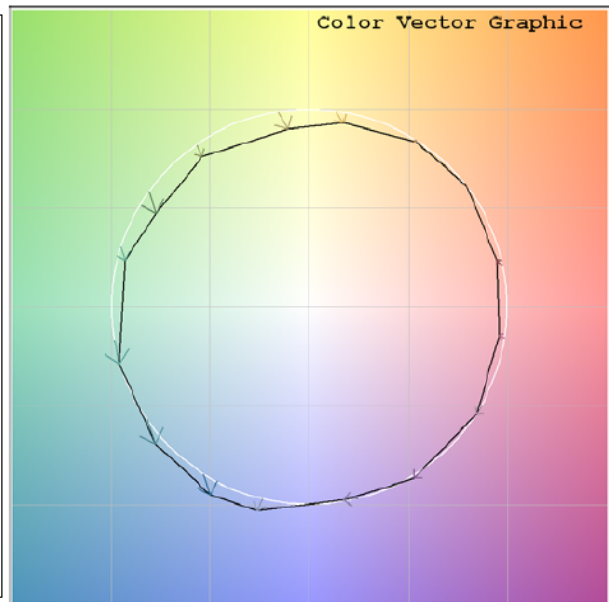
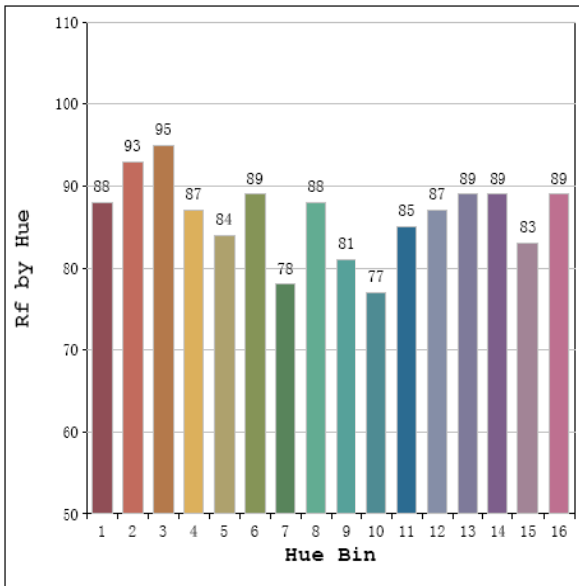
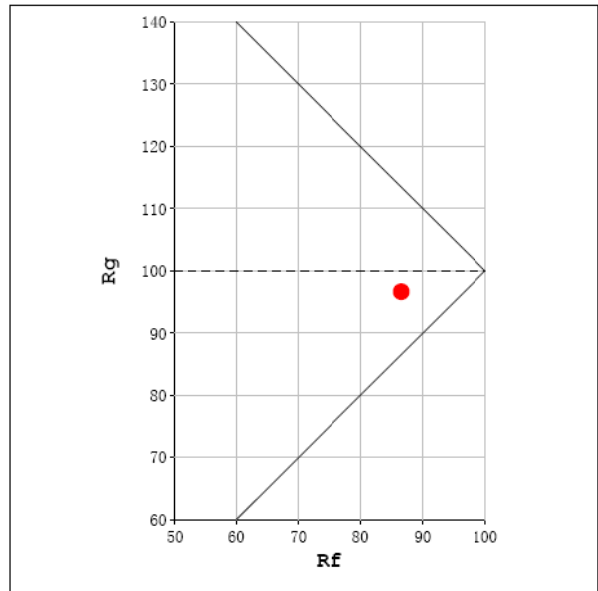
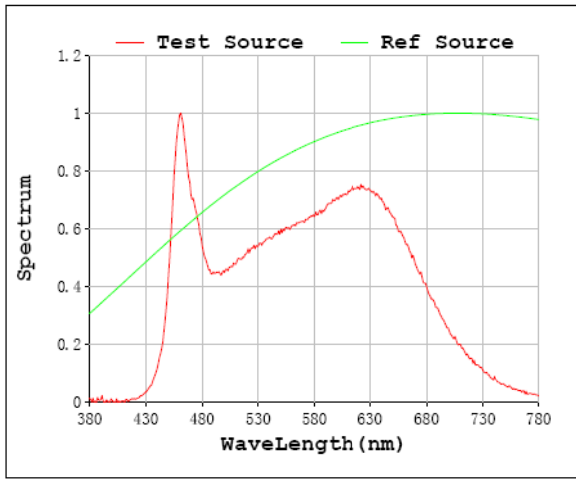
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	738.2
Luminous Efficacy (lm/W)	69.19

### Spectral Power Distribution & Chromaticity Diagram



# T30

Rf: 87 CCT: 4095 K u': 0.2250  
 Rg: 97 Duv: -0.0027 v': 0.4965



### 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	DLC0039(C4R8/10/119FAUNVM) 5000K		

#### Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202008310007	120.0	60	0.089	10.70	0.997

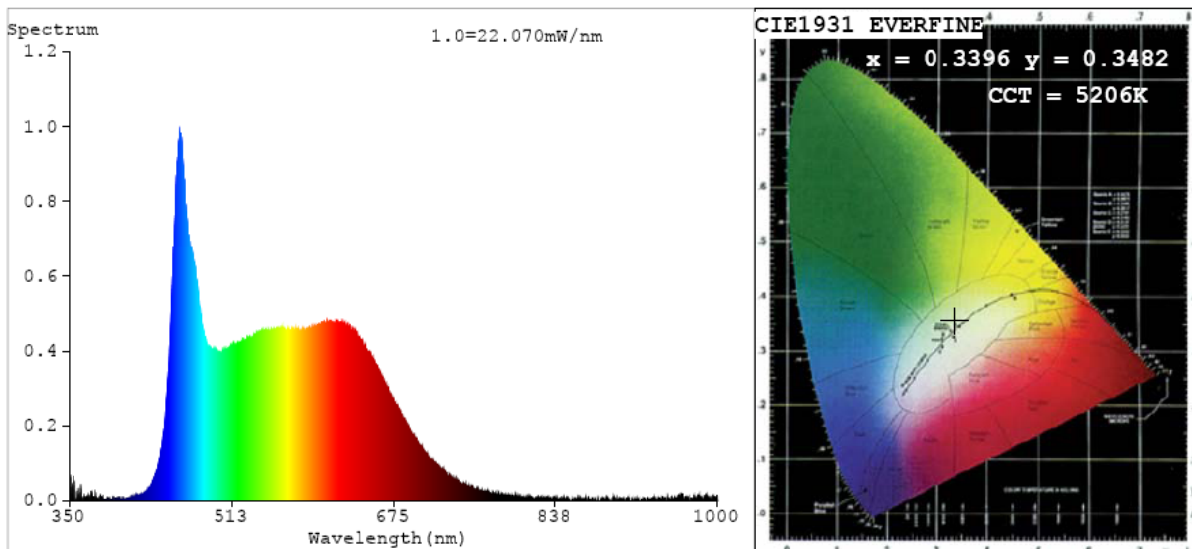
#### Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	5206
Duv	0.0005
Chromaticity (x, y)	x=0.3396 y=0.3482
Chromaticity (u', v')	u'=0.2091 v'=0.4822
Color Rendering Index (CRI)	91.0
R9	94
Total Luminous (lm)	721.8
Luminous Efficacy (lm/W)	67.44

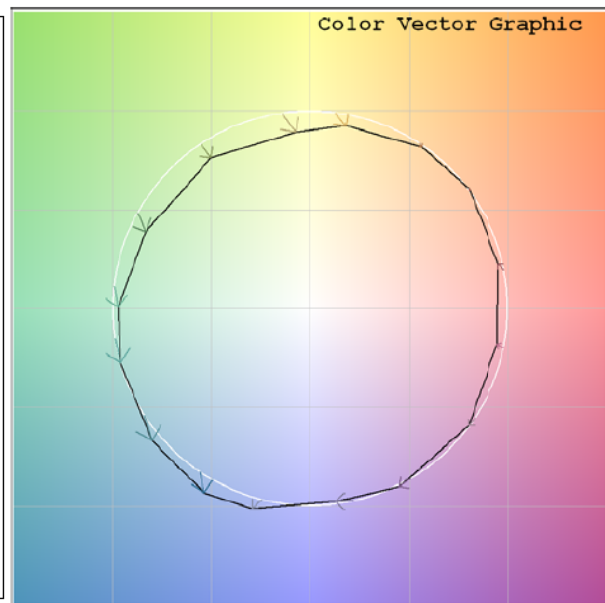
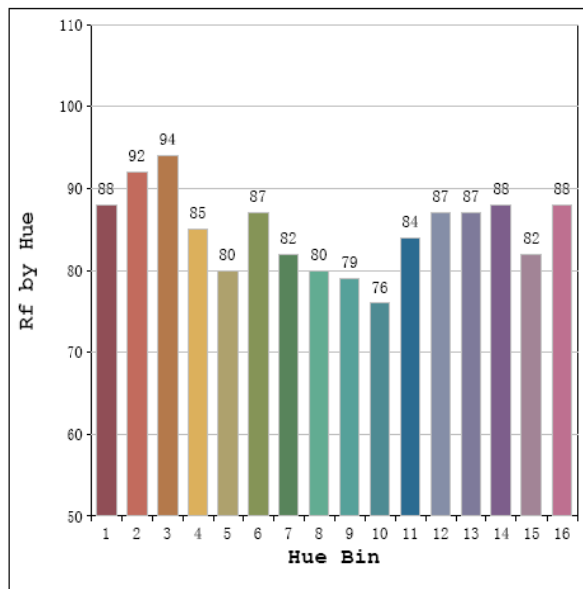
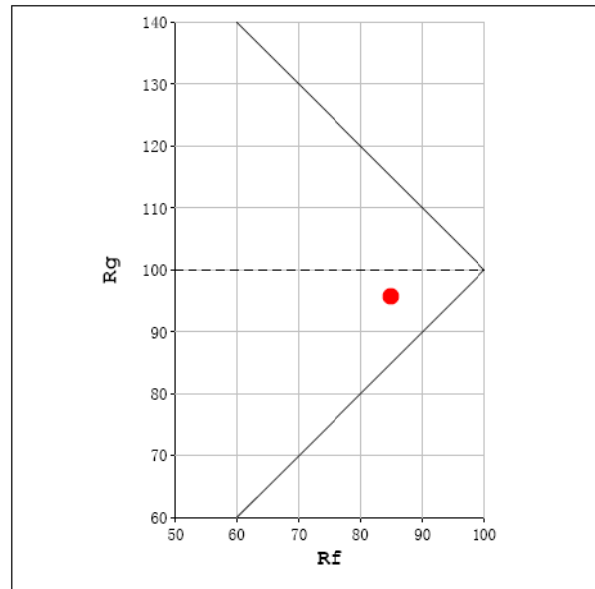
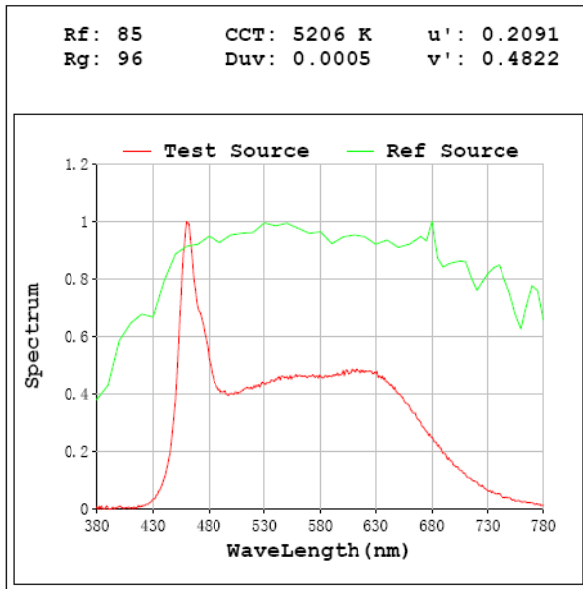
Special Color Rendering Indices			
R1	95	R9	94
R2	92	R10	85
R3	90	R11	90
R4	85	R12	71
R5	92	R13	94
R6	90	R14	95
R7	85	R15	93
R8	87	--	--

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	720.9
Luminous Efficacy (lm/W)	66.13

### Spectral Power Distribution & Chromaticity Diagram

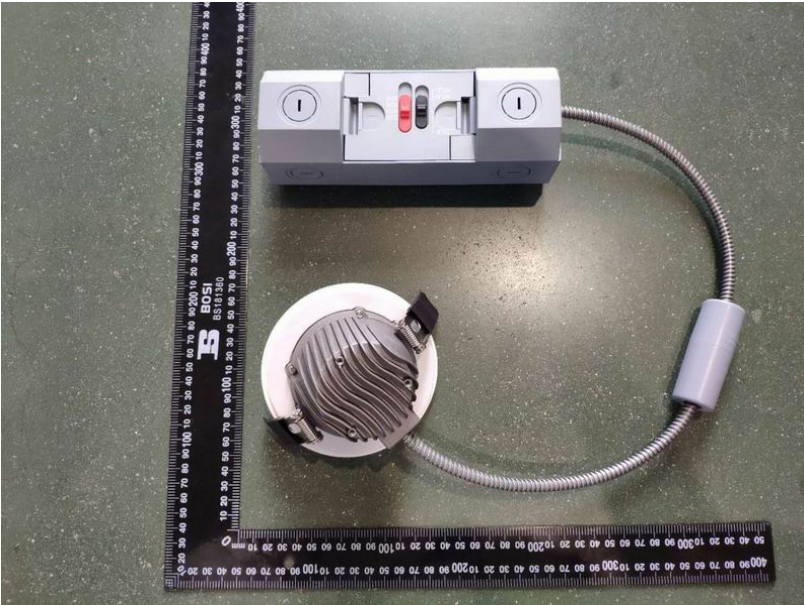
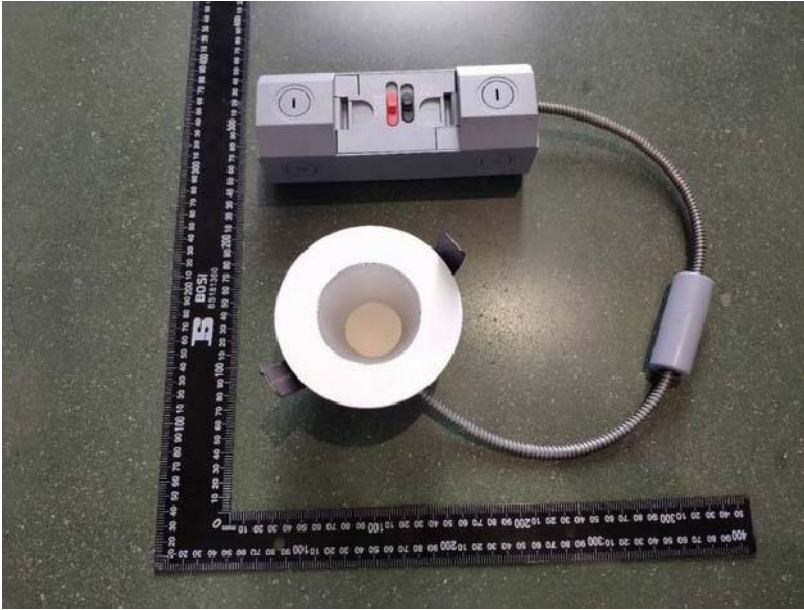


# T30



Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DLC0039(C4R8/10/119FAUNVM)	8.0W 3000K setting	120.0	551.6	7.87	70.08
		277.0	549.9	8.00	68.73
	10.0W 3000K setting	120.0	634.9	9.41	67.44
		277.0	636.1	9.66	65.84
	11.0W 3000K setting	120.0	722.3	10.78	66.99
		277.0	722.9	10.97	65.90
	11.0W 3500K setting	120.0	733.7	10.62	69.06
		277.0	732.9	10.83	67.70
	11.0W 4000K setting	120.0	737.3	10.46	70.49
		277.0	738.2	10.67	69.19
	11.0W 5000K setting	120.0	721.8	10.70	67.44
		277.0	720.9	10.90	66.13

### 3. Product Photo



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