

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): DLC0049(C6R189FAUNVW)

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

**Type of
Luminaire:** Downlights

Report Date: 2020-09-12

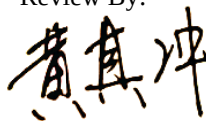
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:

Rated Voltage / Frequency	120V-277Vac, 60 Hz
Nominal Power	18.0W
Rated Initial Lamp Lumen	1500 lm
Declared CCT	3000K/3500K/4000K/5000K

1.2 Test Specifications:

Test item	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	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	2020-09-12	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0049(C6R189FAUNVW)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009120028	120.0	60	0.136	16.30	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

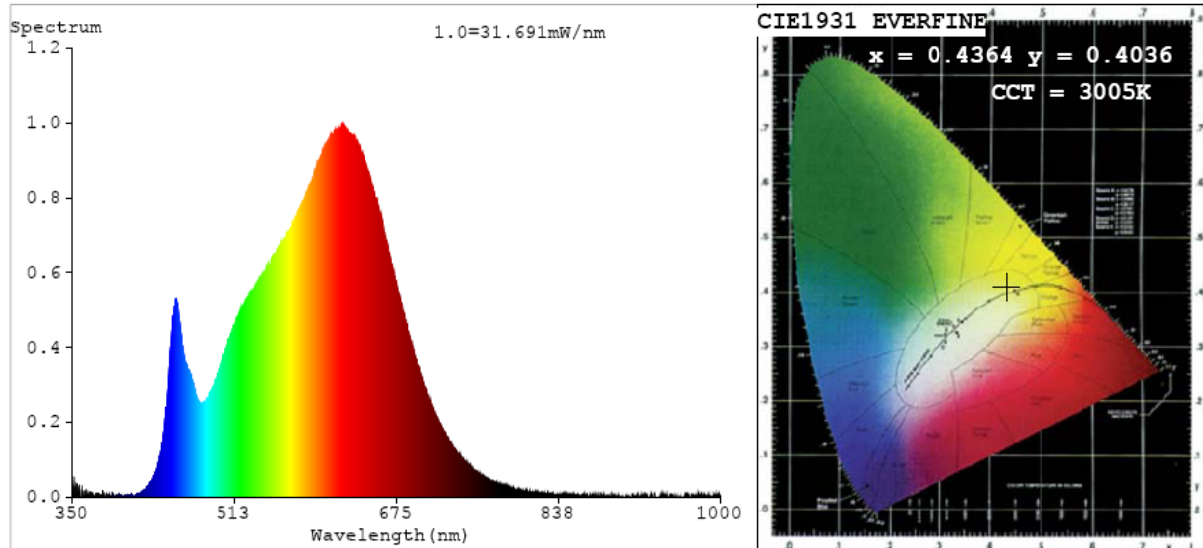
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	94	R9	63
Frequency (Hz)	60	R2	97	R10	93
CCT (K)	3005	R3	99	R11	94
Duv	0.0001	R4	93	R12	80
Chromaticity (x, y)	x=0.4364 y=0.4036	R5	93	R13	95
Chromaticity (u', v')	u'=0.2504 v'=0.5211	R6	96	R14	99
Color Rendering Index (CRI)	93.6	R7	92	R15	90
R9	63	R8	83	--	--

Photometric Measurement – Goniophotometer Method:

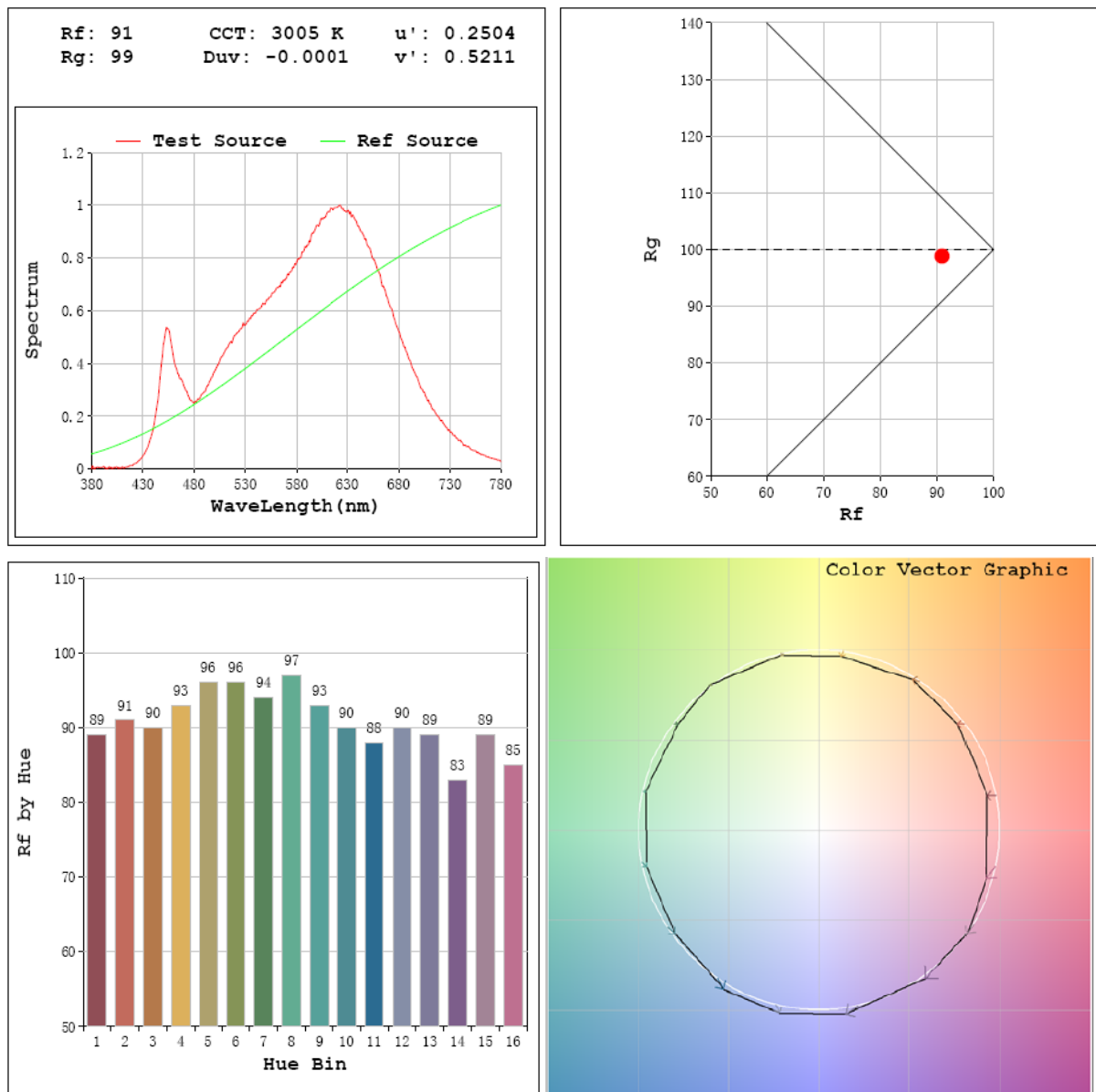
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1570.5
Luminous Efficacy (lm/W)	96.35
Beam Angle (°)	87.8
Center Beam Candle Power (cd)	778.6

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1556
Luminous Efficacy (lm/W)	94.59

Spectral Power Distribution & Chromaticity Diagram



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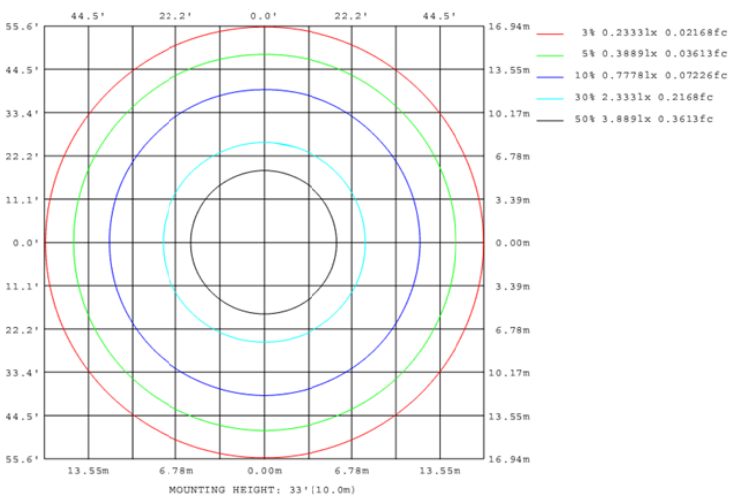
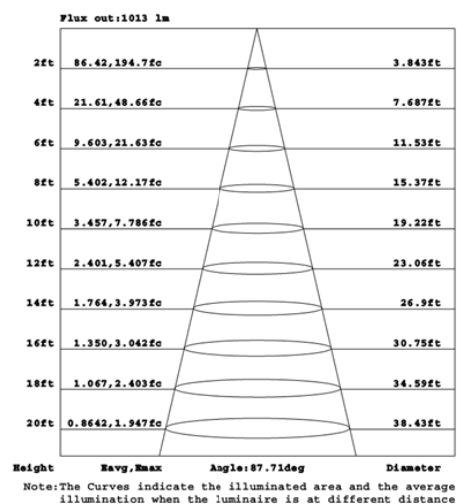
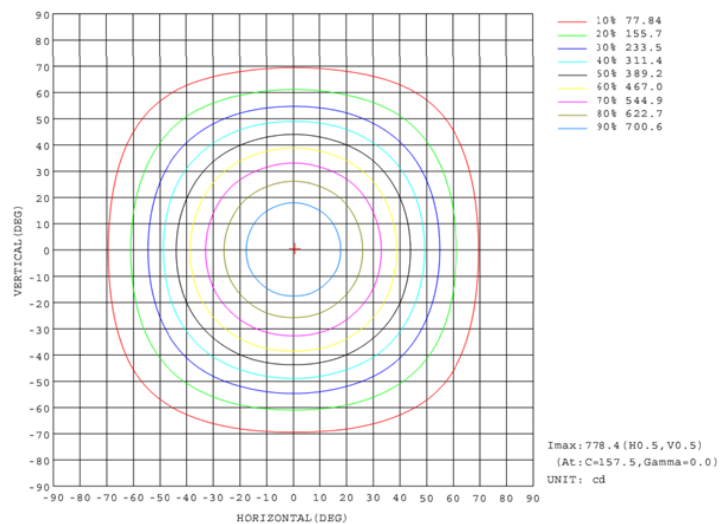
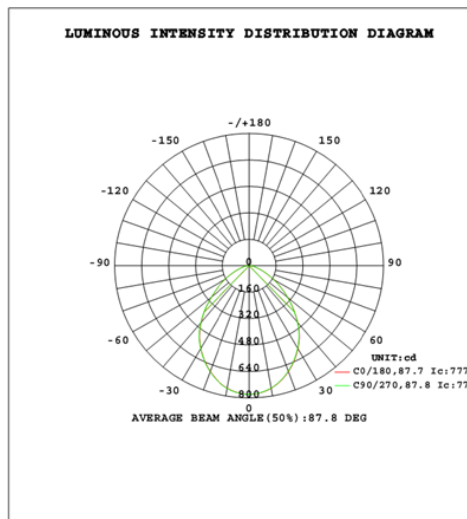


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	567.3	36.1%
0-40	890.3	56.7%
0-60	1382.6	88.0%
60-90	188.0	12.0%
70-100	72.1	4.6%
90-120	0.0	0.0%
0-90	1570.5	100.0%
90-180	0.0	0.0%
0-180	1570.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	73.1	4.7%	90-100	0.0	0.0%
10-20	203.1	12.9%	100-110	0.0	0.0%
20-30	291.1	18.5%	110-120	0.0	0.0%
30-40	323.1	20.6%	120-130	0.0	0.0%
40-50	286.5	18.2%	130-140	0.0	0.0%
50-60	205.8	13.1%	140-150	0.0	0.0%
60-70	115.9	7.4%	150-160	0.0	0.0%
70-80	50.2	3.2%	160-170	0.0	0.0%
80-90	21.9	1.4%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-12	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0049(C6R189FAUNVW)	3500K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009120028	120.0	60	0.134	15.96	0.993

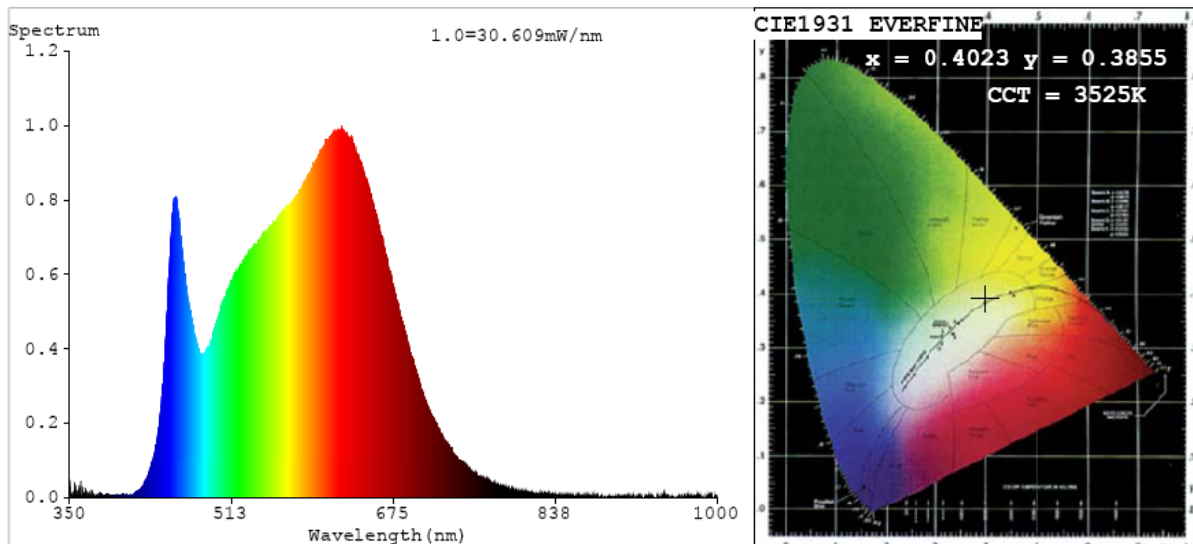
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3525
Duv	0.0017
Chromaticity (x, y)	x=0.4023 y=0.3855
Chromaticity (u', v')	u'=0.2359 v'=0.5086
Color Rendering Index (CRI)	95.7
R9	77
Total Luminous (lm)	1672
Luminous Efficacy (lm/W)	104.80

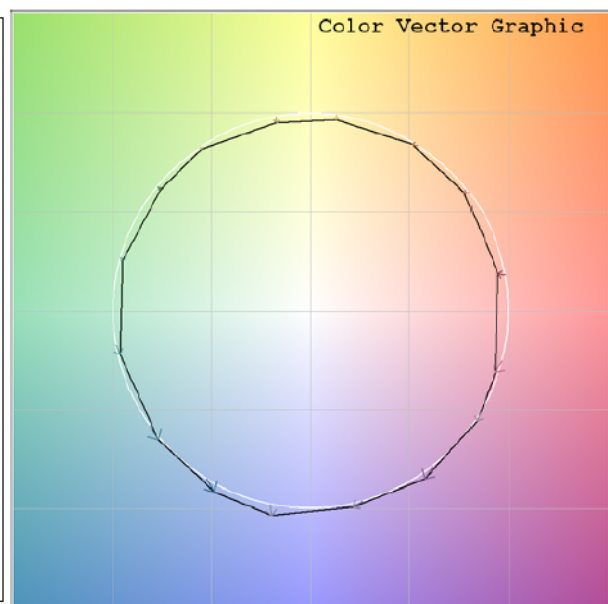
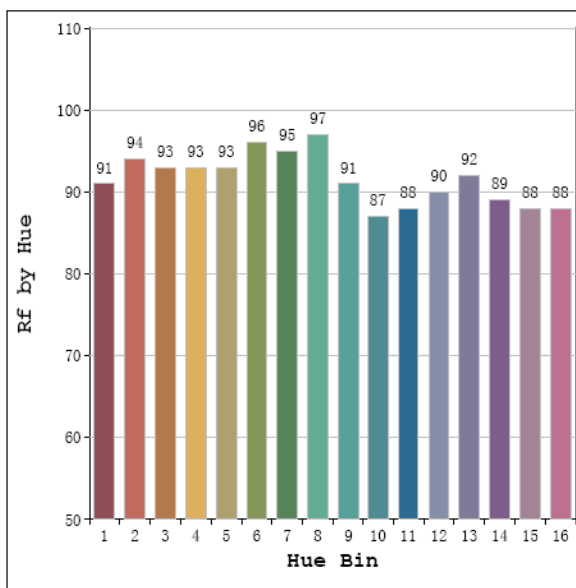
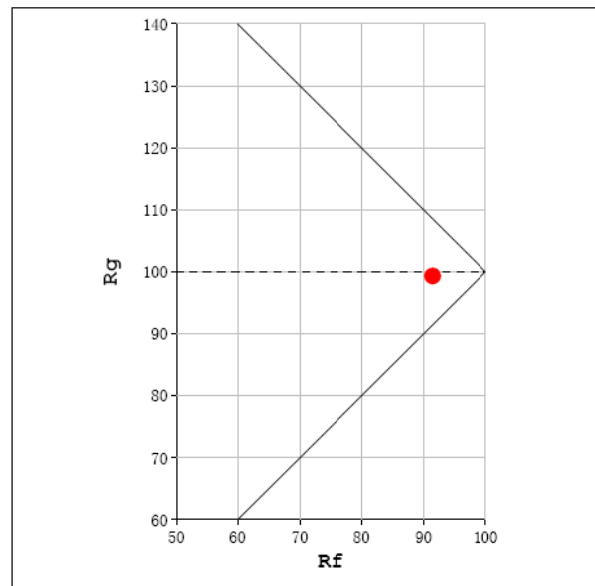
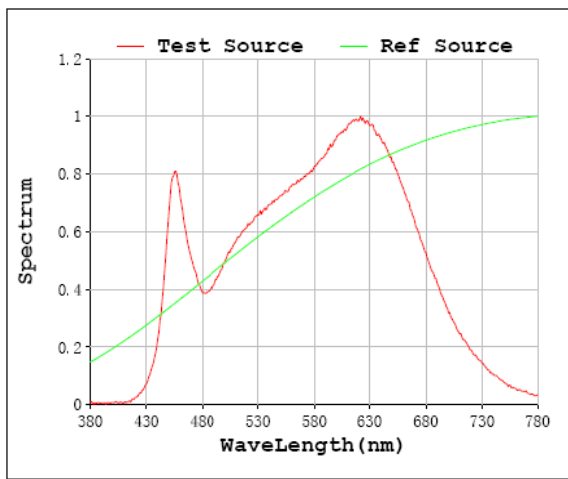
Special Color Rendering Indices			
R1	97	R9	77
R2	100	R10	98
R3	99	R11	96
R4	95	R12	78
R5	96	R13	99
R6	96	R14	99
R7	94	R15	95
R8	89	--	--

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1662
Luminous Efficacy (lm/W)	103.32

Spectral Power Distribution & Chromaticity Diagram



Rf: 91 CCT: 3525 K u': 0.2359
 Rg: 99 Duv: -0.0017 v': 0.5086



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-12	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0049(C6R189FAUNVW)	4000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009120028	120.0	60	0.133	15.88	0.993

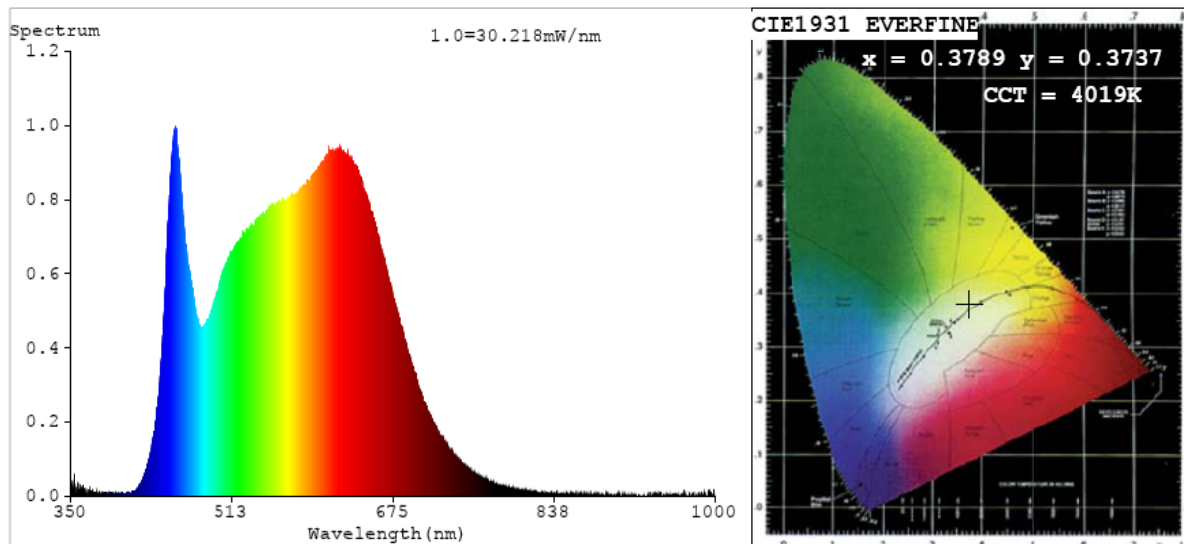
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4019
Duv	0.0010
Chromaticity (x, y)	x=0.3789 y=0.3737
Chromaticity (u', v')	u'=0.2253 v'=0.5000
Color Rendering Index (CRI)	96.2
R9	83
Total Luminous (lm)	1705
Luminous Efficacy (lm/W)	107.36

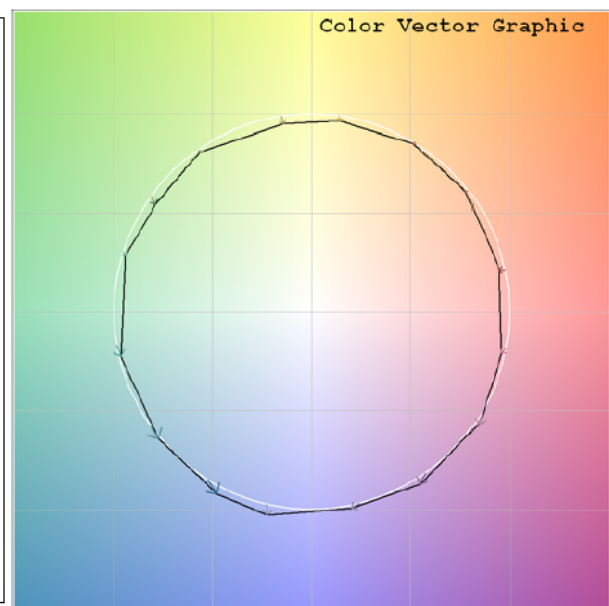
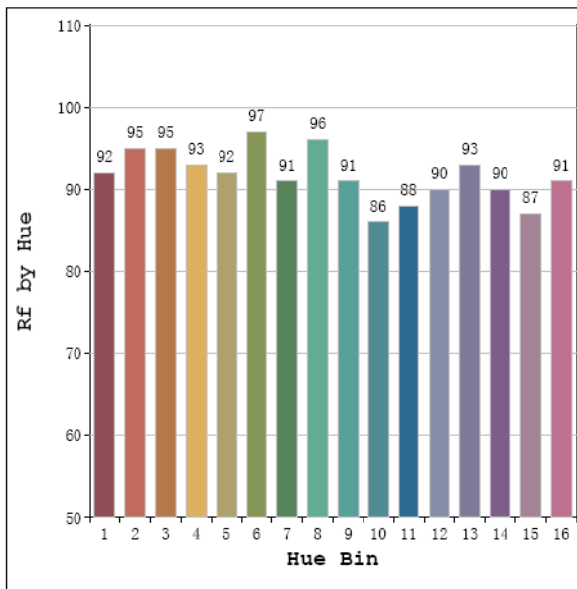
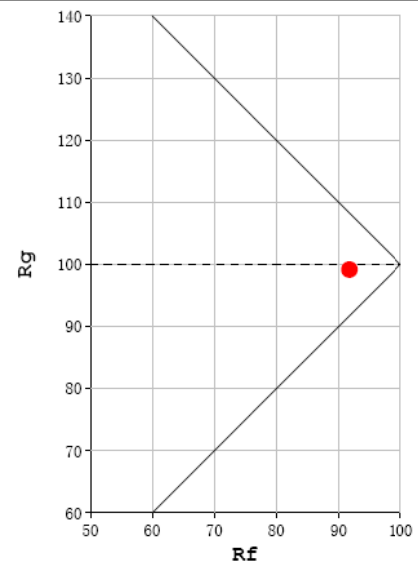
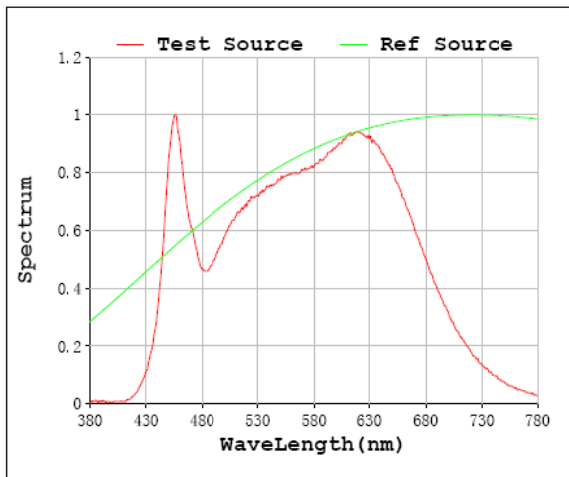
Special Color Rendering Indices			
R1	95	R9	83
R2	100	R10	98
R3	99	R11	97
R4	95	R12	76
R5	96	R13	99
R6	96	R14	99
R7	95	R15	96
R8	92	--	--

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1698
Luminous Efficacy (lm/W)	105.99

Spectral Power Distribution & Chromaticity Diagram



Rf: 92 CCT: 4019 K u': 0.2253
 Rg: 99 Duv: -0.0010 v': 0.5000



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-12	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0049(C6R189FAUNVW)	5000K	

Electrical Measurement:

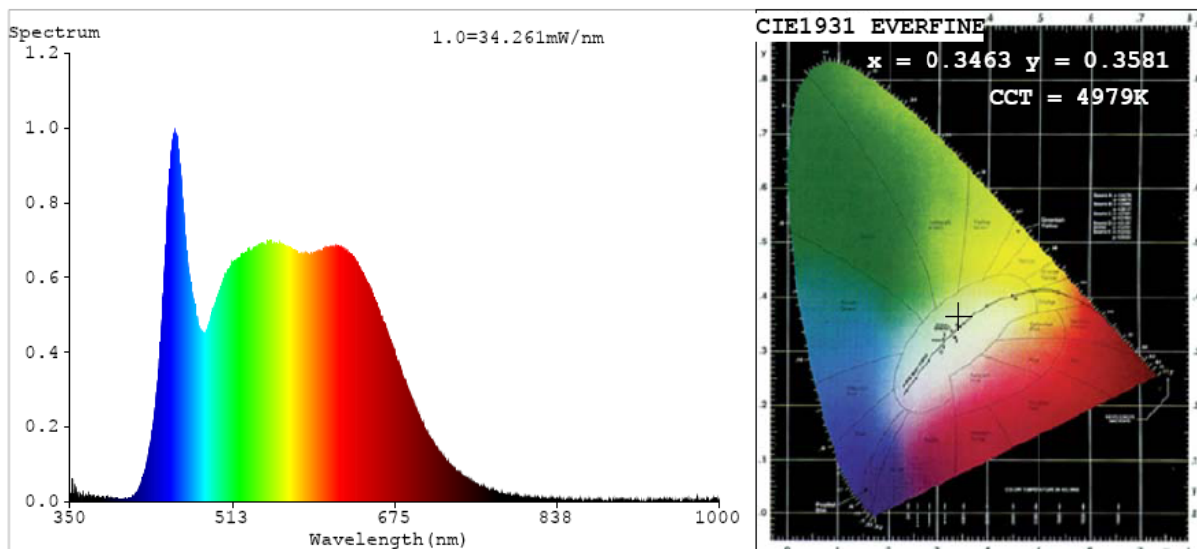
Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009120028	120.0	60	0.137	16.31	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

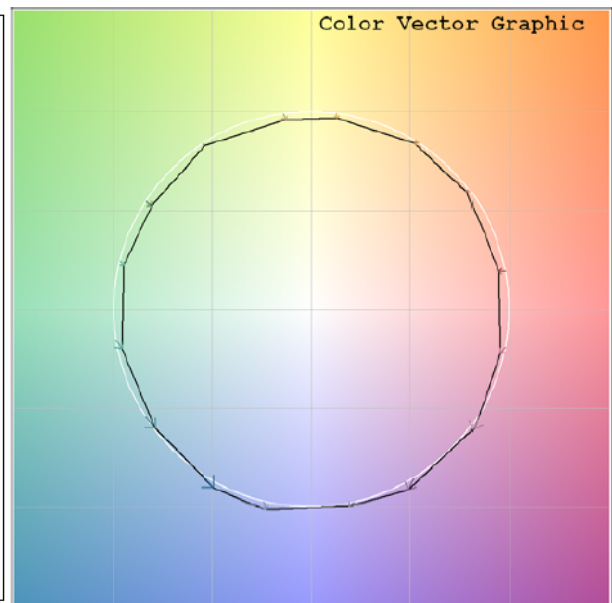
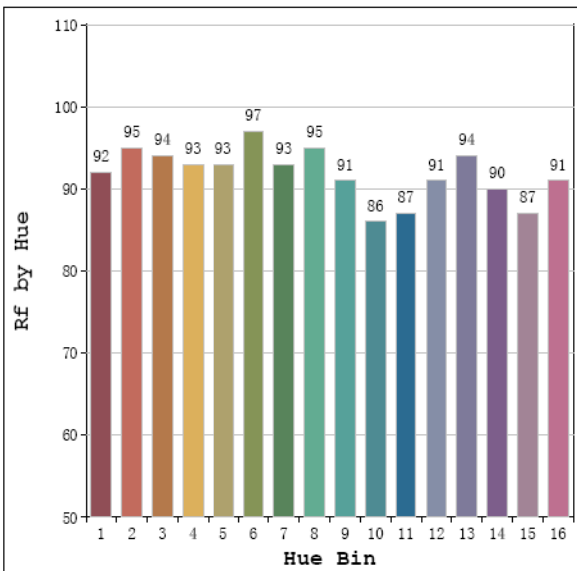
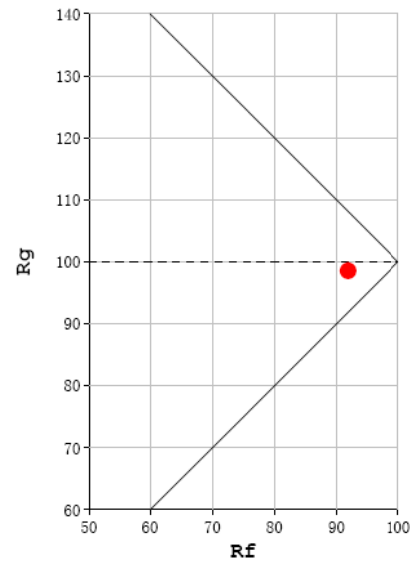
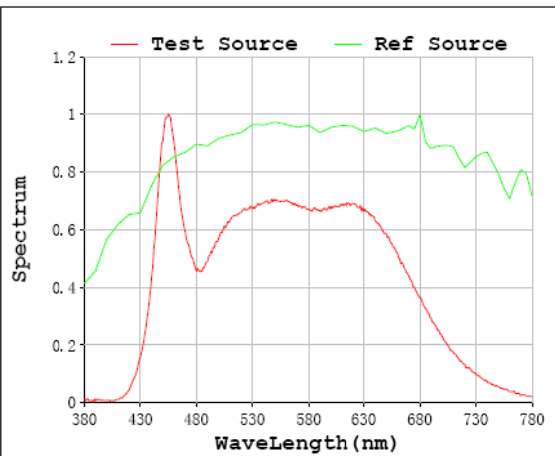
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	95	R9	79
Frequency (Hz)	60	R2	98	R10	93
CCT (K)	4979	R3	98	R11	94
Duv	0.0028	R4	93	R12	71
Chromaticity (x, y)	x=0.3463 y=0.3581	R5	93	R13	96
Chromaticity (u', v')	u'=0.2097 v'=0.4880	R6	95	R14	99
Color Rendering Index (CRI)	94.8	R7	95	R15	93
R9	79	R8	91	--	--
Total Luminous (lm)	1647				
Luminous Efficacy (lm/W)	100.97				

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	1641
Luminous Efficacy (lm/W)	99.67

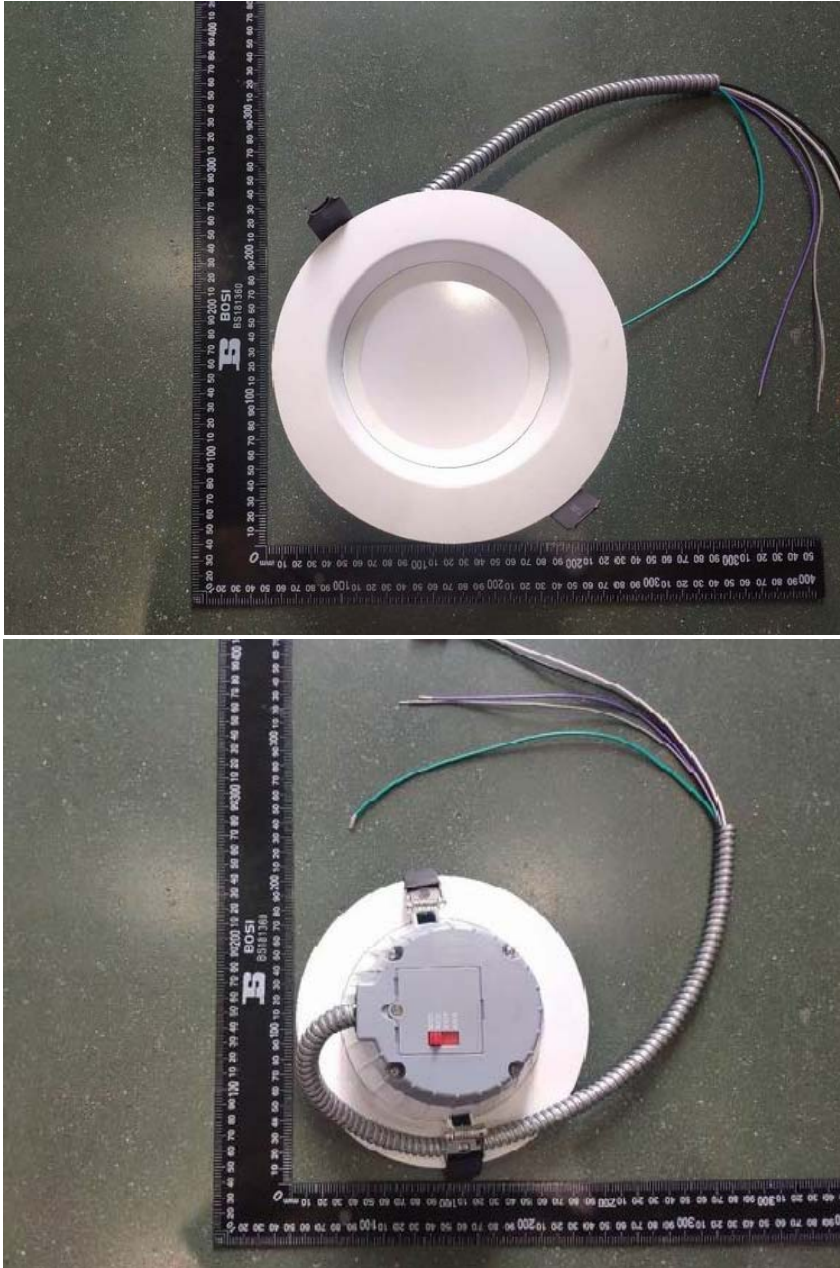
Spectral Power Distribution & Chromaticity Diagram



Rf: 92 CCT: 4979 K u': 0.2097
 Rg: 99 Duv: 0.0028 v': 0.4880



3. Product Photo



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