

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):
DLC0056(CRLEDFA-8R-33S-9CCT-UNV-WS)

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

**Type of
Luminaire:** Downlights

Report Date: 2021-09-04

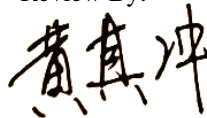
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120V-277Vac, 60 Hz
Nominal Power	25 W /29 W /33W
Rated Initial Lamp Lumen	2400 lm /2700 lm /3000 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	2021-09-04	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0056(CRLEDFA-8R-33S-9CCT-UNV-WS) 33W 3000K		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202109030001	120.0	60	0.266	31.74	0.996

Chromaticity Measurement - Sphere-Spectroradiometer Method:

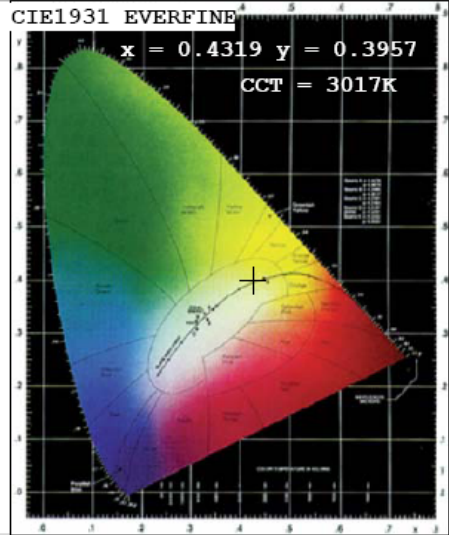
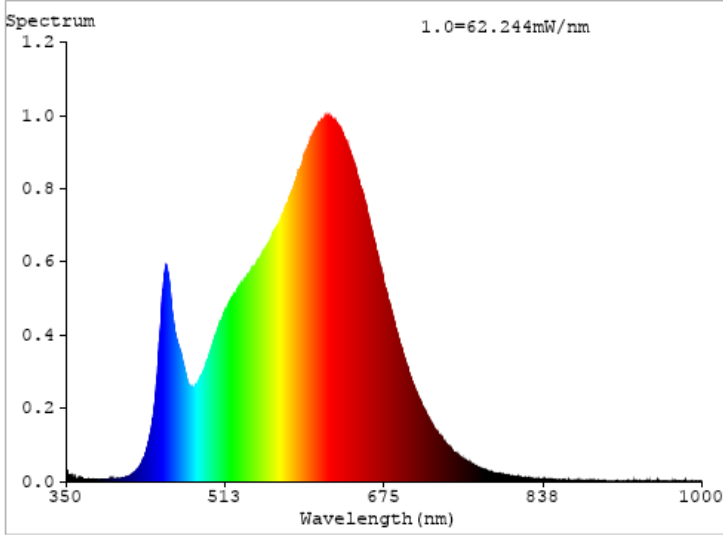
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	94	R9	61
Frequency (Hz)	60	R2	98	R10	95
CCT (K)	3017	R3	98	R11	94
Duv	0.0027	R4	93	R12	84
Chromaticity (x, y)	x=0.4319 y=0.3957	R5	94	R13	96
Chromaticity (u', v')	u'=0.2509 v'=0.5173	R6	96	R14	100
Color Rendering Index (CRI)	93.3	R7	91	R15	90
R9	61	R8	82	--	--

Photometric Measurement – Goniophotometer Method:

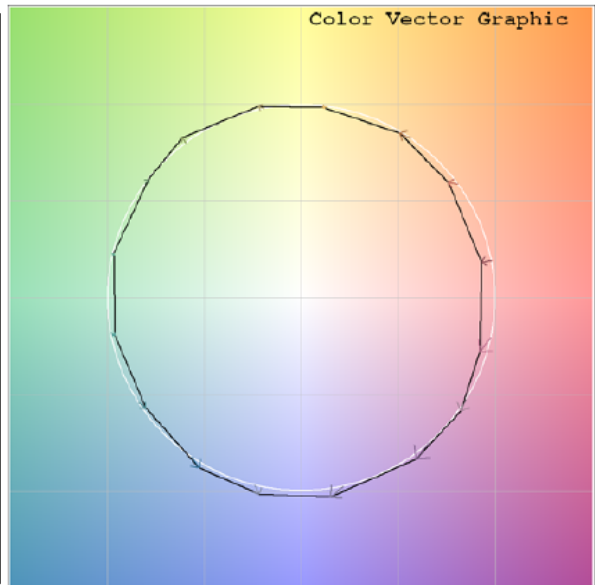
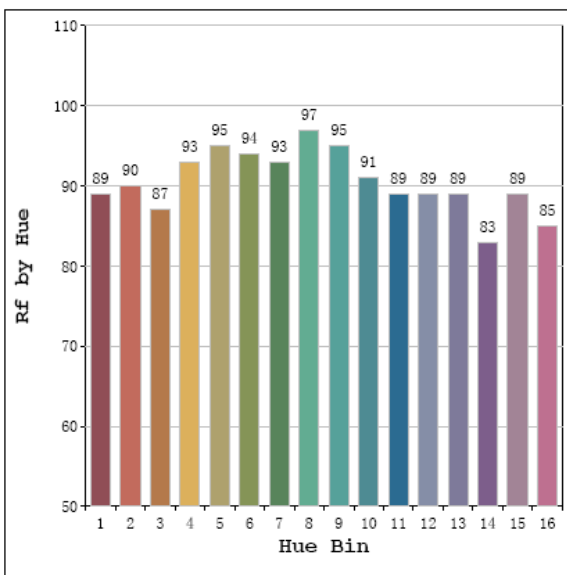
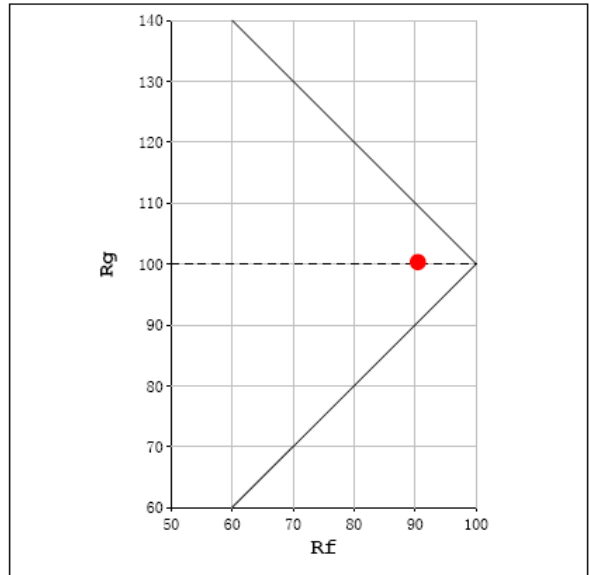
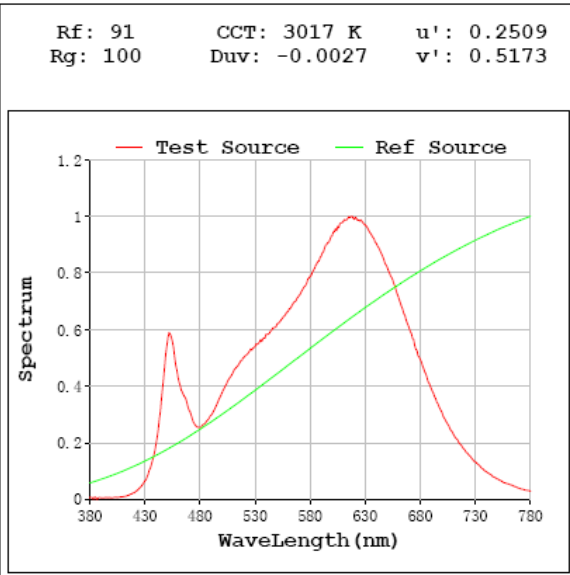
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3071
Luminous Efficacy (lm/W)	96.88
Beam Angle (°)	88.8
Center Beam Candle Power (cd)	1570

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3038
Luminous Efficacy (lm/W)	97.36

Spectral Power Distribution & Chromaticity Diagram



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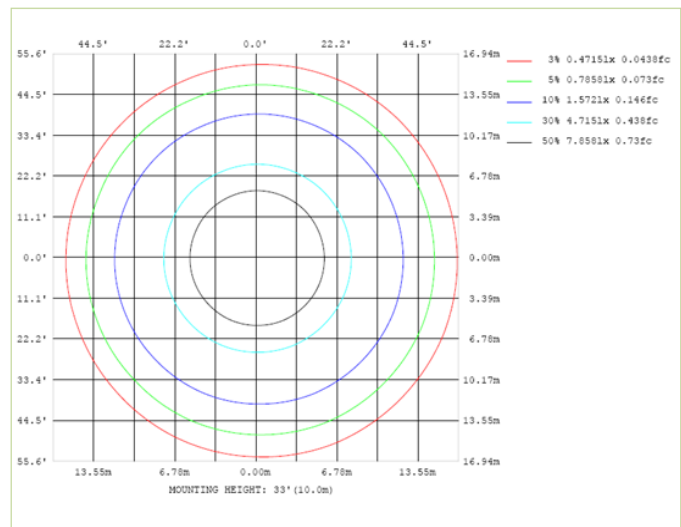
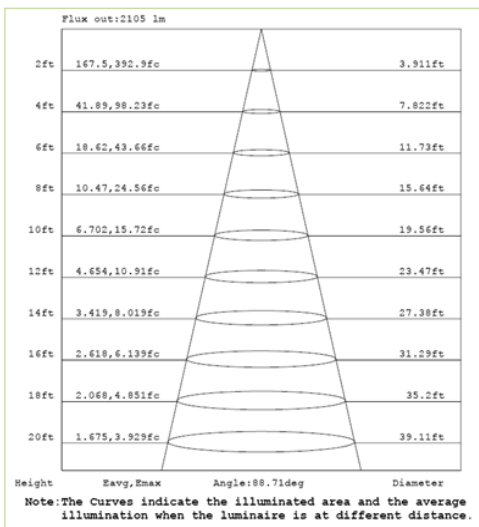
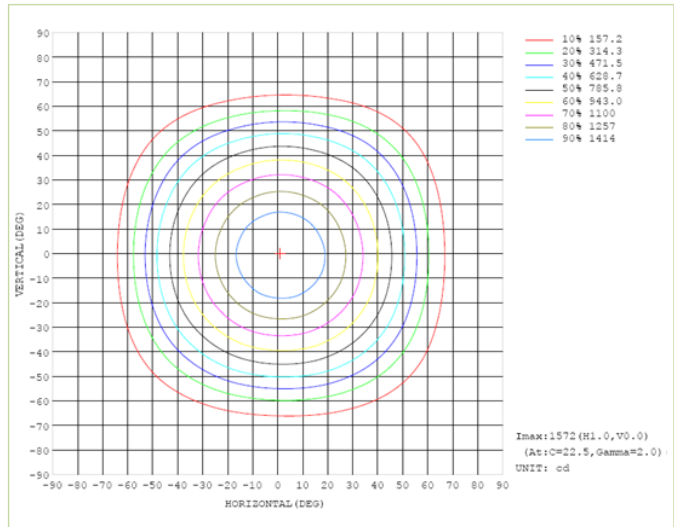
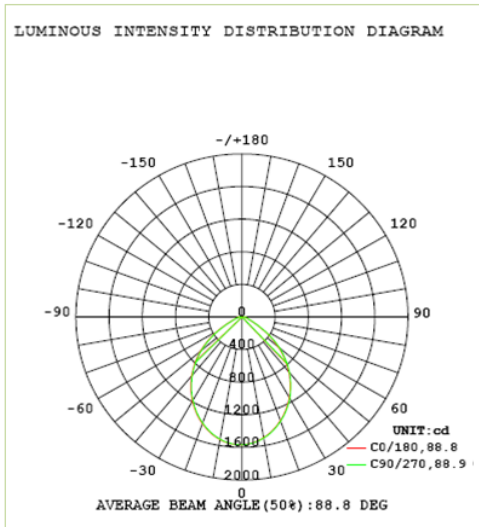


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1143.3	144.3%
0-40	1795.0	226.5%
0-60	2784.3	351.4%
60-90	286.7	36.2%
70-100	112.5	14.2%
90-120	0.0	0.0%
0-90	3071.0	387.5%
90-180	0.0	0.0%
0-180	792.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	147.1	18.6%	90-100	0.0	0.0%
10-20	409.0	51.6%	100-110	0.0	0.0%
20-30	587.2	74.1%	110-120	0.0	0.0%
30-40	651.7	82.2%	120-130	0.0	0.0%
40-50	589.4	74.4%	130-140	0.0	0.0%
50-60	399.9	50.5%	140-150	0.0	0.0%
60-70	174.2	22.0%	150-160	0.0	0.0%
70-80	77.3	9.8%	160-170	0.0	0.0%
80-90	35.2	4.4%	170-180	0.0	0.0%

Photometric Data



2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2021-09-04	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0056(CRLEDF A-8R-33S-9CCT-UNV-WS)		33W 3500K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202109030001	120.0	60	0.264	31.55	0.996

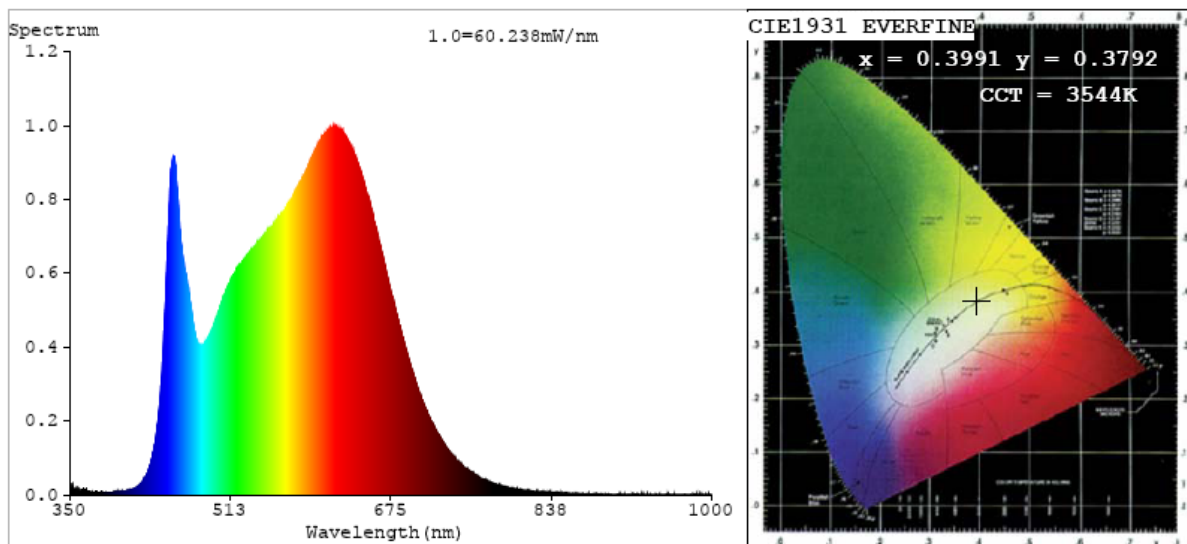
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3544
Duv	0.0037
Chromaticity (x, y)	x=0.3991 y=0.3792
Chromaticity (u', v')	u'=0.2364 v'=0.5055
Color Rendering Index (CRI)	94.9
R9	77
Total Luminous (lm)	3279
Luminous Efficacy (lm/W)	103.91

Special Color Rendering Indices			
R1	98	R9	77
R2	98	R10	98
R3	97	R11	97
R4	95	R12	78
R5	96	R13	99
R6	95	R14	100
R7	92	R15	96
R8	88	--	--

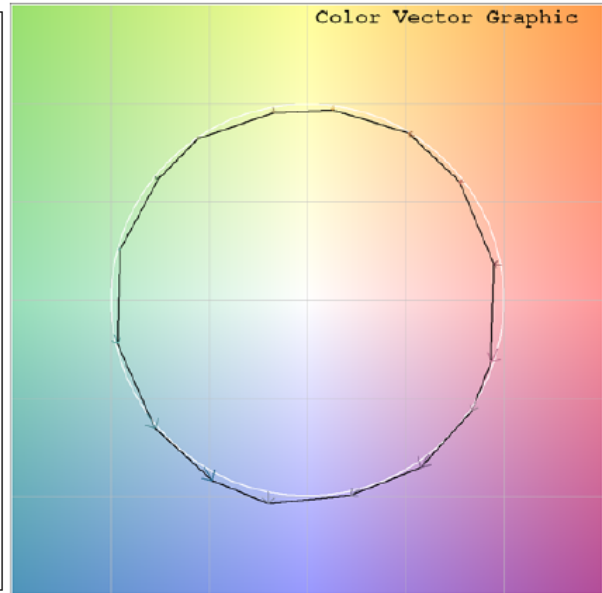
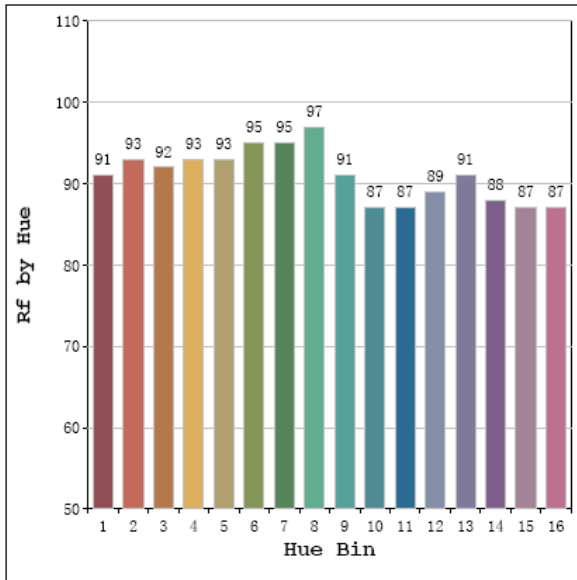
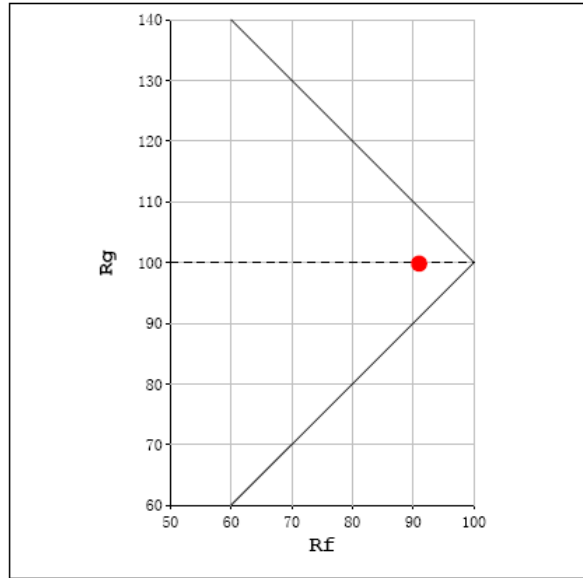
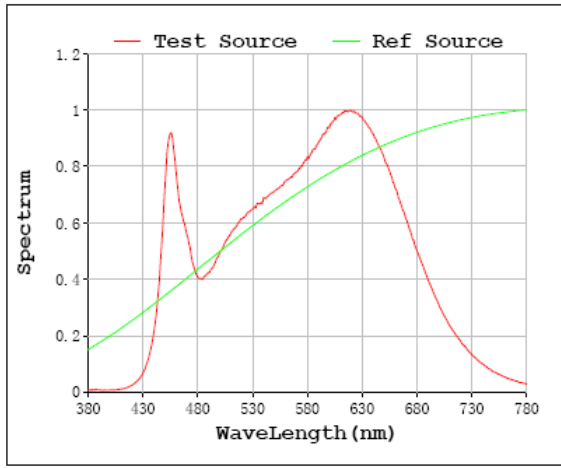
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3241
Luminous Efficacy (lm/W)	104.43

Spectral Power Distribution & Chromaticity Diagram



TM30

Rf: 91 CCT: 3544 K u': 0.2364
 Rg: 100 Duv: -0.0037 v': 0.5055



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2021-09-04	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0056(CRLEDFA-8R-33S-9CCT-UNV-WS)		33W 4000K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202109030001	120.0	60	0.263	31.43	0.996

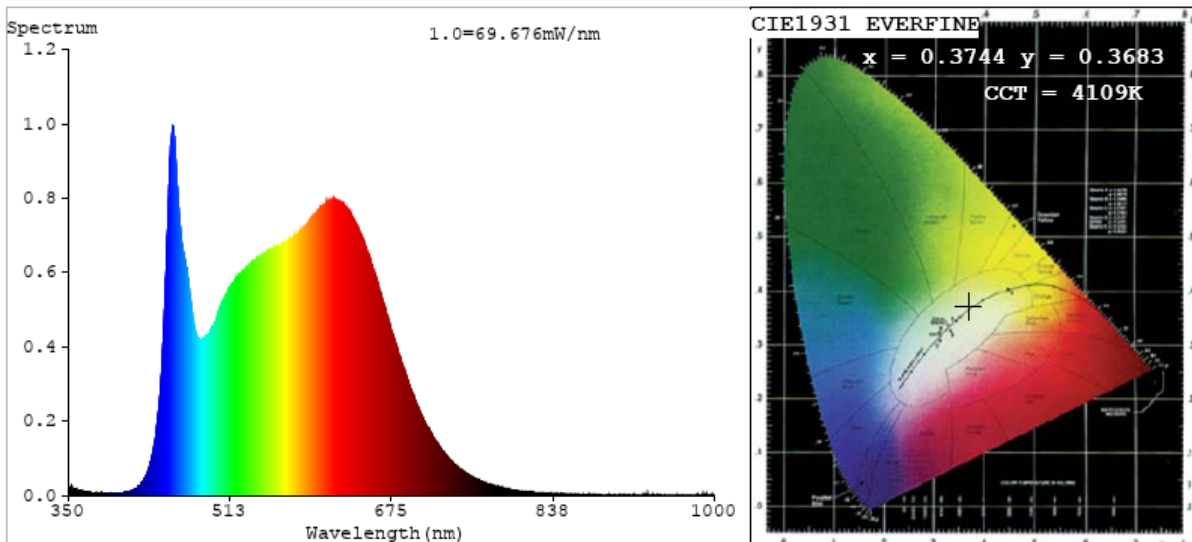
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4109
Duv	0.0022
Chromaticity (x, y)	x=0.3744 y=0.3683
Chromaticity (u', v')	u'=0.2245 v'=0.4969
Color Rendering Index (CRI)	95.2
R9	84
Total Luminous (lm)	3339
Luminous Efficacy (lm/W)	106.24

Special Color Rendering Indices			
R1	98	R9	84
R2	98	R10	98
R3	98	R11	96
R4	94	R12	73
R5	95	R13	99
R6	95	R14	100
R7	93	R15	96
R8	91	--	--

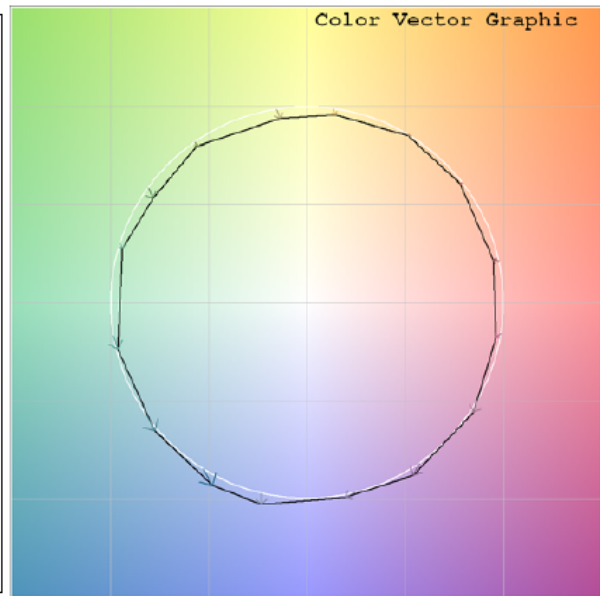
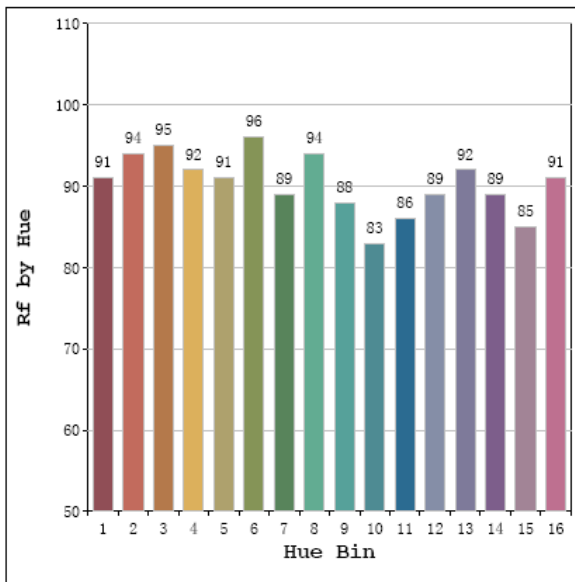
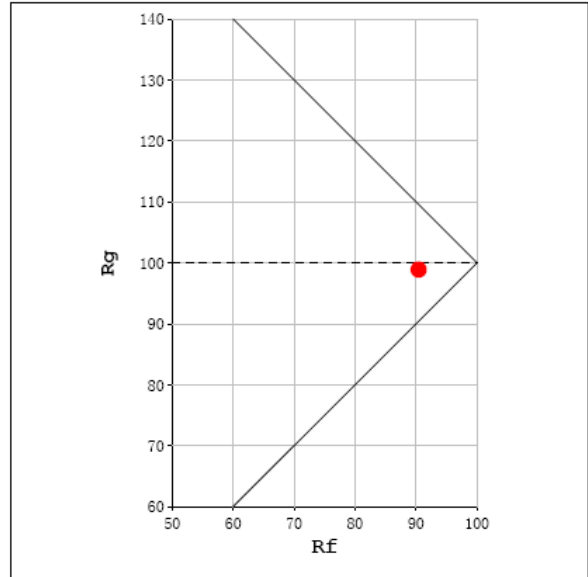
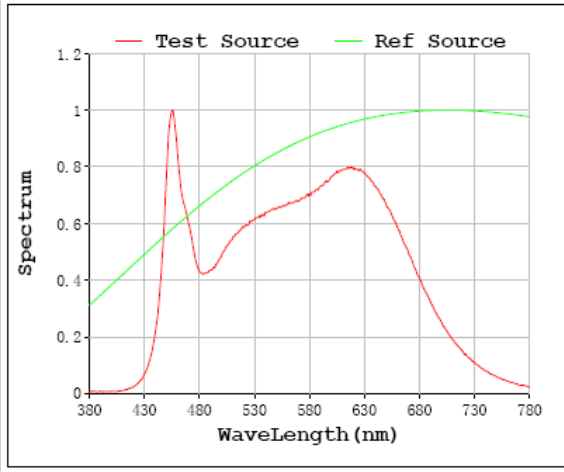
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3305
Luminous Efficacy (lm/W)	106.89

Spectral Power Distribution & Chromaticity Diagram



TM30

Rf: 90 CCT: 4109 K u' : 0.2245
 Rg: 99 Duv: -0.0022 v' : 0.4969



2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2021-09-04	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0056(CRLEDFA-8R-33S-9CCT-UNV-WS)		33W 5000K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202109030001	120.0	60	0.266	31.74	0.996

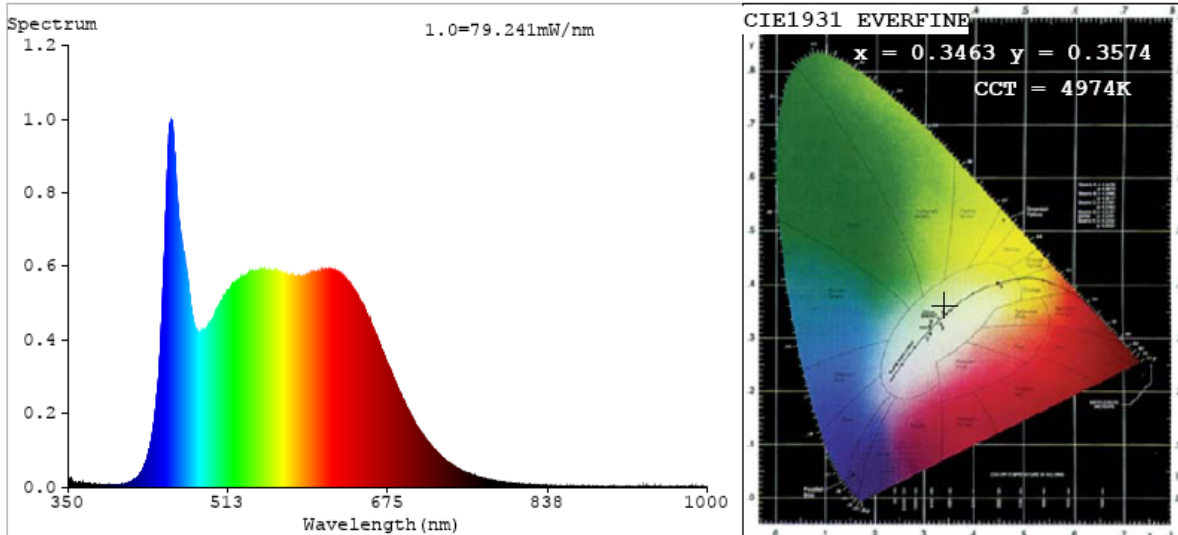
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4974
Duv	0.0024
Chromaticity (x, y)	x=0.3463 y=0.3574
Chromaticity (u', v')	u'=0.2100 v'=0.4876
Color Rendering Index (CRI)	94.4
R9	81
Total Luminous (lm)	3250
Luminous Efficacy (lm/W)	102.39

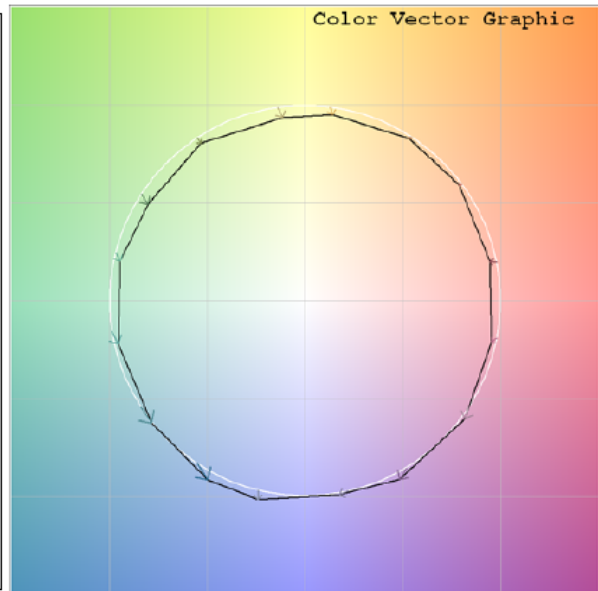
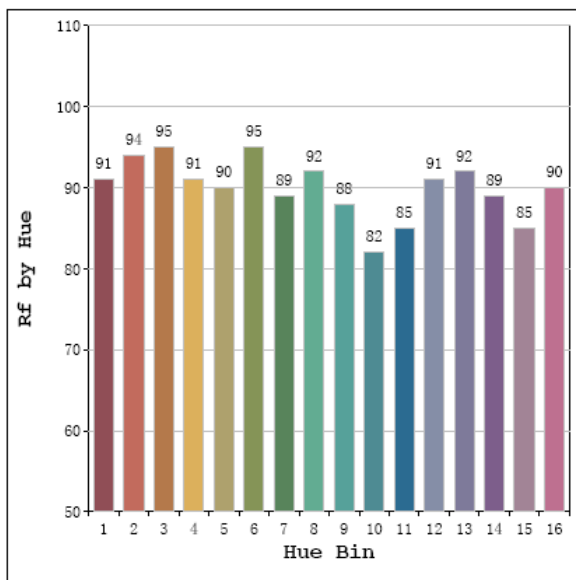
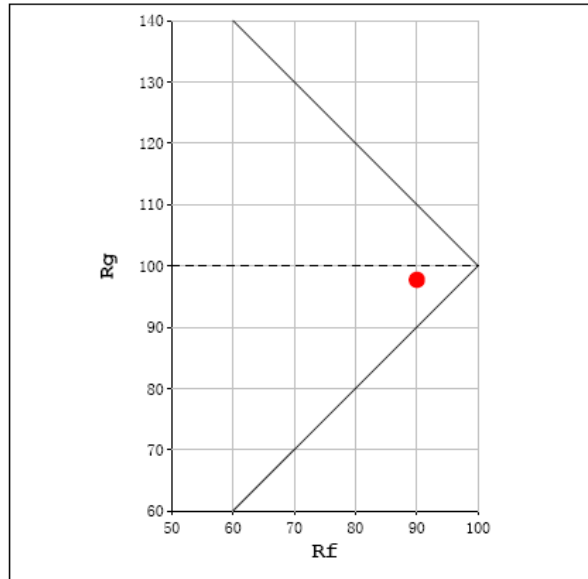
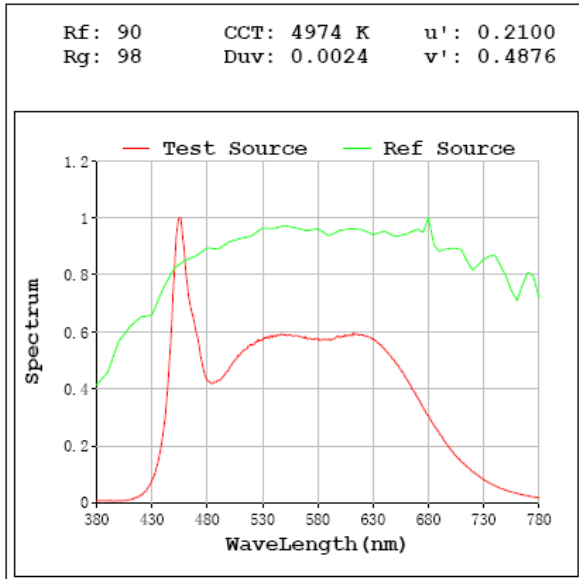
Special Color Rendering Indices			
R1	96	R9	81
R2	99	R10	97
R3	99	R11	93
R4	90	R12	67
R5	93	R13	98
R6	96	R14	99
R7	92	R15	93
R8	90	--	--

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	3212
Luminous Efficacy (lm/W)	103.02

Spectral Power Distribution & Chromaticity Diagram

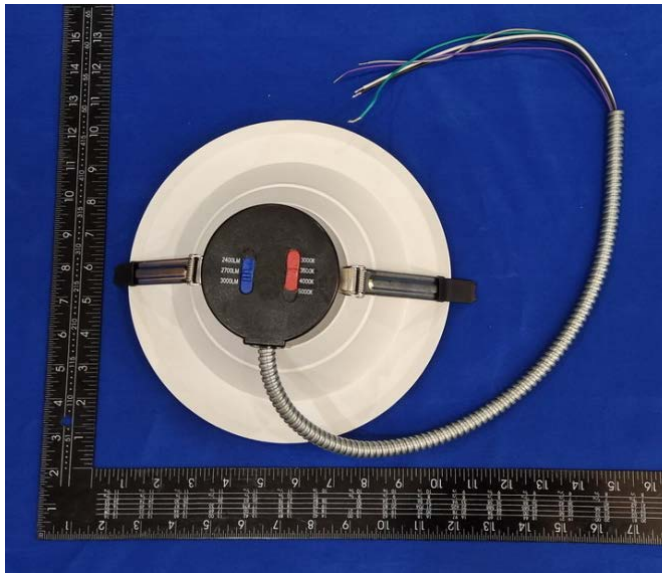
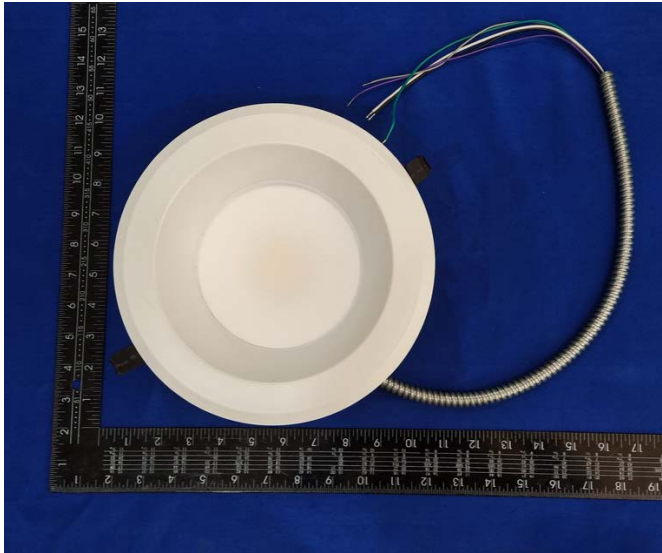


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Sample No.	Wattage and CCT setting	Test Voltage(V)	Flux(lm)	P(W)	Luminous Efficacy lm/W
DLC0056(CRLEDFA-8R-33S-9CCT-UNV-WS)	25W 3000K setting	120.0	2422	23.31	103.91
		277.0	2415	23.44	103.02
	29W 3000K setting	120.0	2729	27.1	100.71
		277.0	2707	26.95	100.45
	33W 3000K setting	120.0	3071	31.74	96.88
		277.0	3038	31.2	97.36
	33W 3500K setting	120.0	3279	31.55	103.91
		277.0	3241	31.03	104.43
	33W 4000K setting	120.0	3339	31.43	106.24
		277.0	3305	30.92	106.89
	33W 5000K setting	120.0	3250	31.74	102.39
		277.0	3212	31.18	103.02

3. Product Photo



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