

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): DLC0053(C6R229FAUNVW)

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

**Type of
Luminaire:** Downlights

Report Date: 2020-09-09

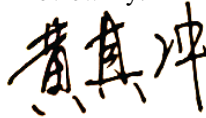
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:

Rated Voltage / Frequency	120V-277Vac, 60 Hz
Nominal Power	22.0W
Rated Initial Lamp Lumen	2000 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	2020-09-09	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0053(C6R229FAUNVW)	3000K	

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009080001	120.0	60	0.176	21.07	0.995

Chromaticity Measurement - Sphere-Spectroradiometer Method:

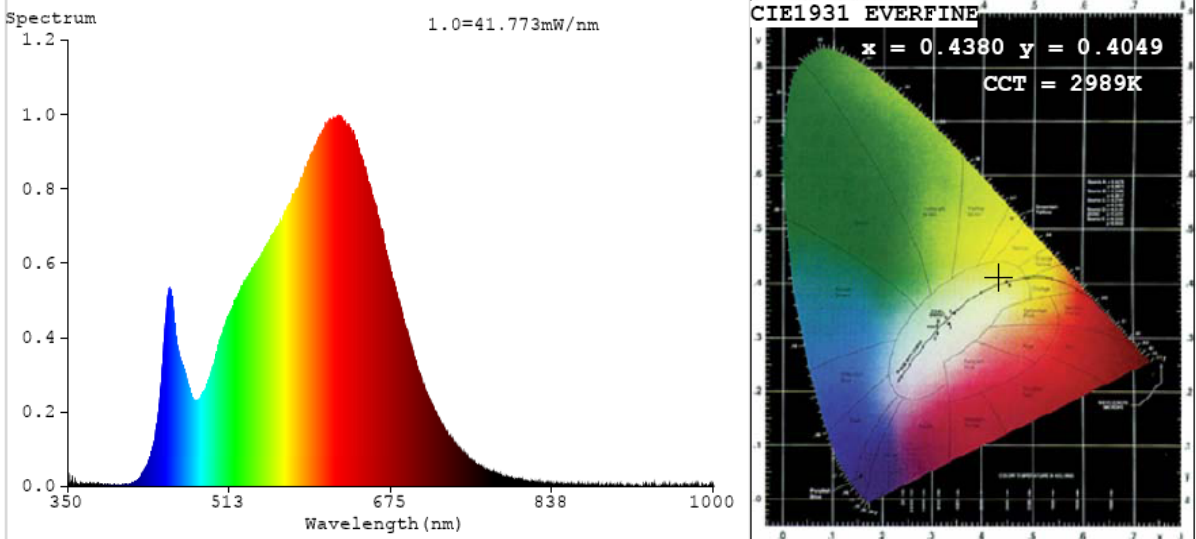
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120	R1	93	R9	61
Frequency (Hz)	60	R2	96	R10	90
CCT (K)	2989	R3	98	R11	93
Duv	0.0002	R4	92	R12	79
Chromaticity (x, y)	x=0.4380 y=0.4049	R5	92	R13	94
Chromaticity (u', v')	u'=0.2509 v'=0.5219	R6	95	R14	98
Color Rendering Index (CRI)	92.7	R7	93	R15	89
R9	61	R8	83	--	--

Photometric Measurement – Goniophotometer Method:

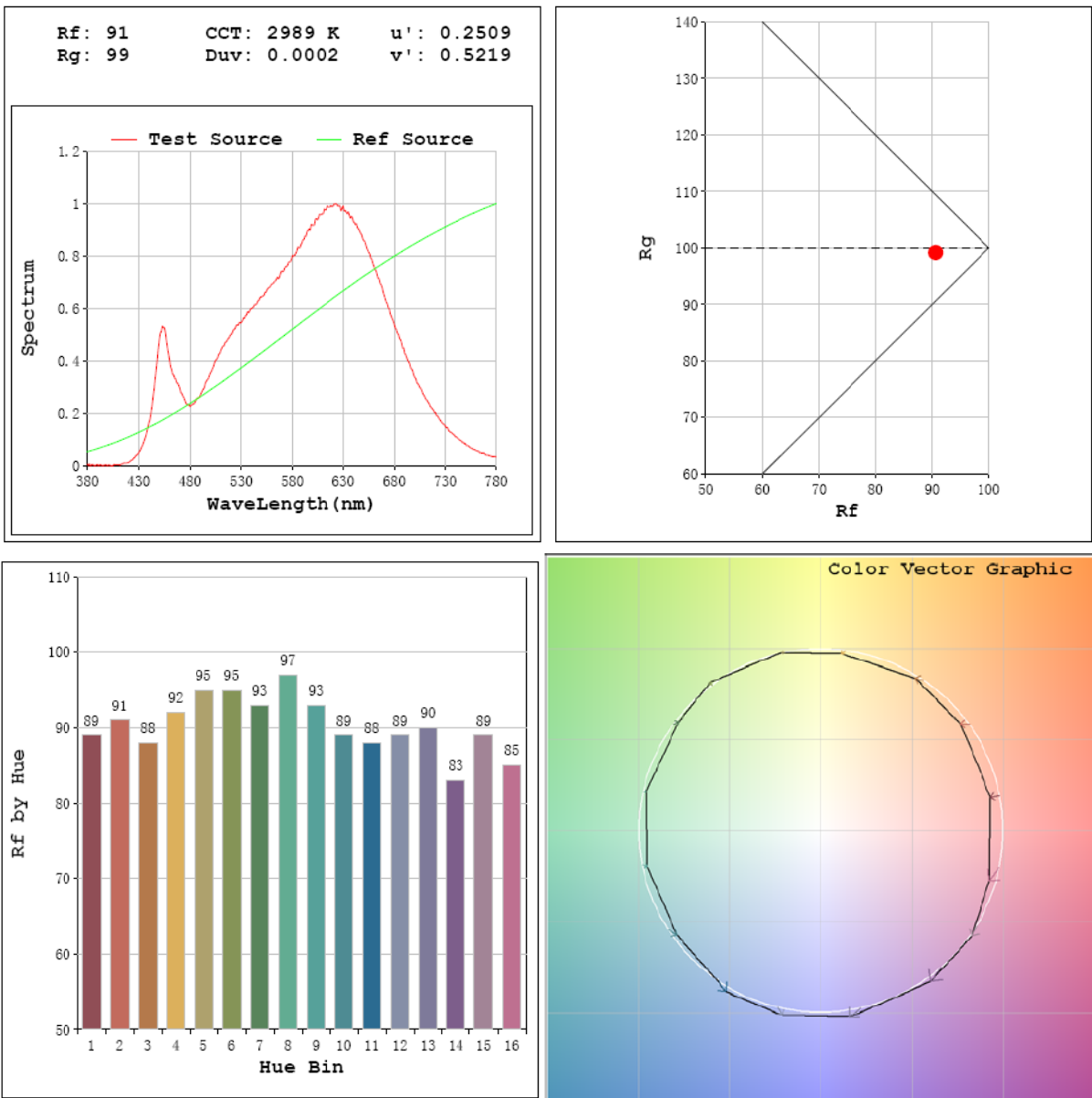
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2097.1
Luminous Efficacy (lm/W)	100.82
Beam Angle (°)	84.2
Center Beam Candle Power (cd)	1105

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2078
Luminous Efficacy (lm/W)	98.93

Spectral Power Distribution & Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	794.3	37.9%
0-40	1233.4	58.8%
0-60	1868.8	89.1%
60-90	228.4	10.9%
70-100	88.0	4.2%
90-120	0.0	0.0%
0-90	2097.1	100.0%
90-180	0.0	0.0%
0-180	2097.1	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	103.4	4.9%	90-100	0.0	0.0%
10-20	286.1	13.6%	100-110	0.0	0.0%
20-30	404.8	19.3%	110-120	0.0	0.0%
30-40	439.2	20.9%	120-130	0.0	0.0%
40-50	376.7	18.0%	130-140	0.0	0.0%
50-60	258.7	12.3%	140-150	0.0	0.0%
60-70	140.4	6.7%	150-160	0.0	0.0%
70-80	61.6	2.9%	160-170	0.0	0.0%
80-90	26.4	1.3%	170-180	0.0	0.0%

Photometric Data

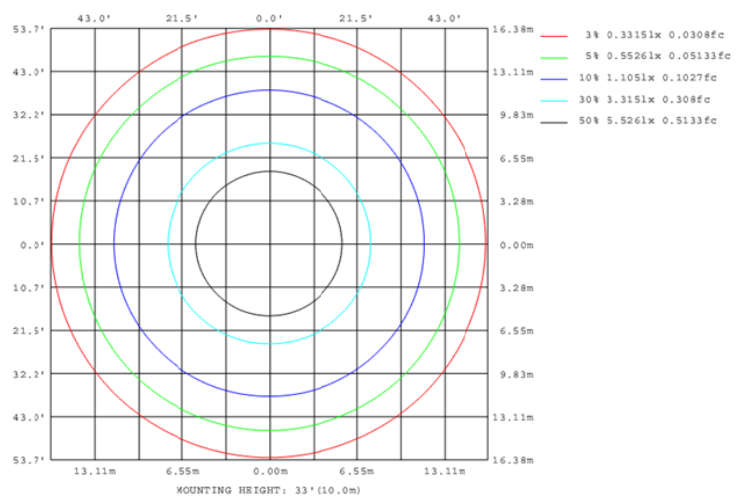
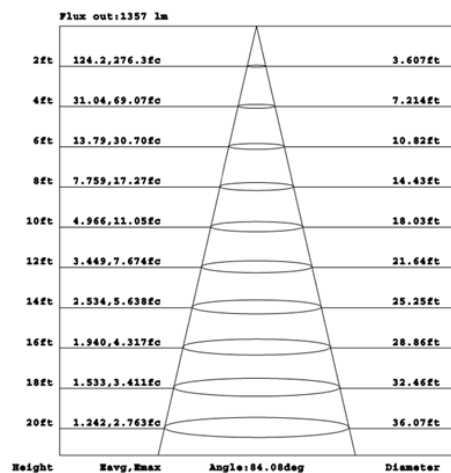
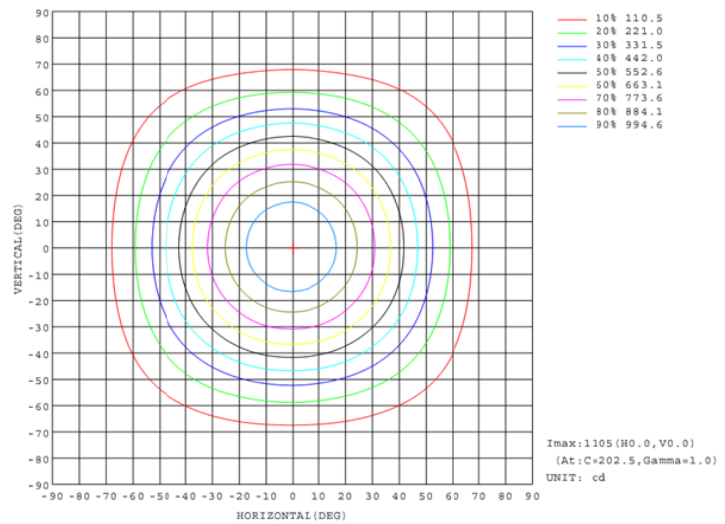
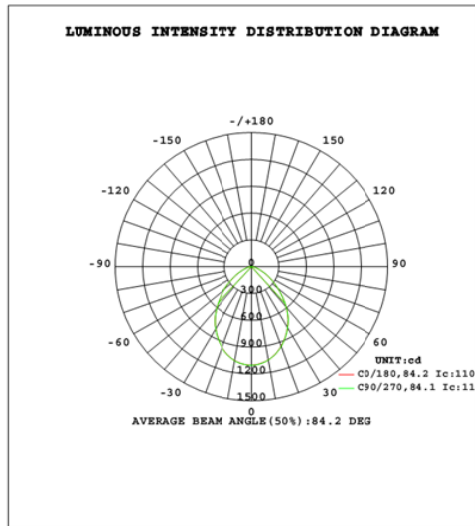


Table--1

UNIT: cd

γ (DEG)	C(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	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103	1103
5	1089	1092	1091	1093	1090	1094	1093	1094	1094	1096	1094	1096	1094	1094	1094	1092
10	1058	1063	1060	1062	1060	1064	1064	1067	1066	1068	1069	1068	1068	1067	1065	1063
15	1012	1015	1010	1013	1013	1017	1018	1021	1022	1024	1024	1023	1024	1020	1018	1015
20	947	950	947	950	950	954	955	959	961	963	964	961	962	958	956	952
25	872	874	870	875	873	880	880	886	887	889	891	889	887	884	881	877
30	787	790	786	790	788	795	797	803	804	806	807	806	805	800	798	792
35	697	698	694	699	698	704	705	712	713	716	718	716	714	709	708	702
40	589	591	586	591	589	597	598	604	608	609	611	608	608	602	600	594
45	480	481	478	480	480	486	487	494	497	497	500	496	496	491	490	484
50	377	378	374	377	377	381	382	388	391	391	393	390	391	385	385	380
55	283	280	282	280	282	283	288	289	291	294	293	294	290	291	286	287
60	204	202	202	201	203	204	207	208	209	212	210	211	208	209	206	206
65	136	137	136	137	136	139	138	141	142	141	143	141	141	139	140	138
70	87.4	88.5	87.1	88.4	87.6	89.2	88.5	90.1	90.8	90.4	91.2	90.1	90.5	89.2	89.8	88.5
75	53.9	54.4	53.8	54.6	54.0	54.8	54.3	55.3	55.9	55.4	56.0	55.4	55.8	55.0	55.4	54.8
80	39.2	39.7	39.4	39.7	39.4	39.8	39.5	39.9	40.7	40.5	40.8	40.6	40.9	40.6	40.8	40.5
85	22.3	22.6	22.3	22.7	22.4	22.9	22.6	23.1	24.8	24.6	24.8	24.4	24.7	24.3	24.5	24.1
90	11.3	11.4	11.4	11.4	11.4	11.4	11.4	11.4	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0

2.1.2 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-09	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0053(C6R229FAUNVW)		3500K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009080001	120.0	60	0.173	20.61	0.995

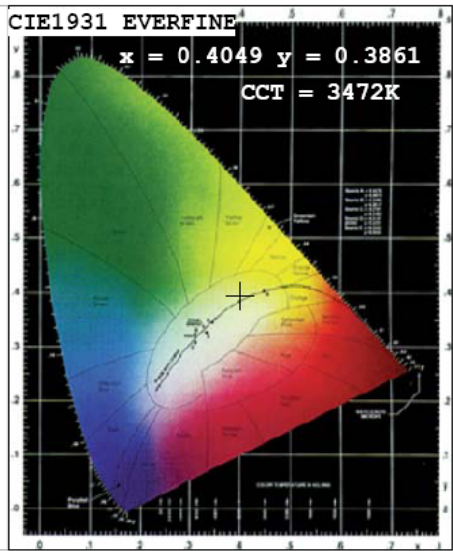
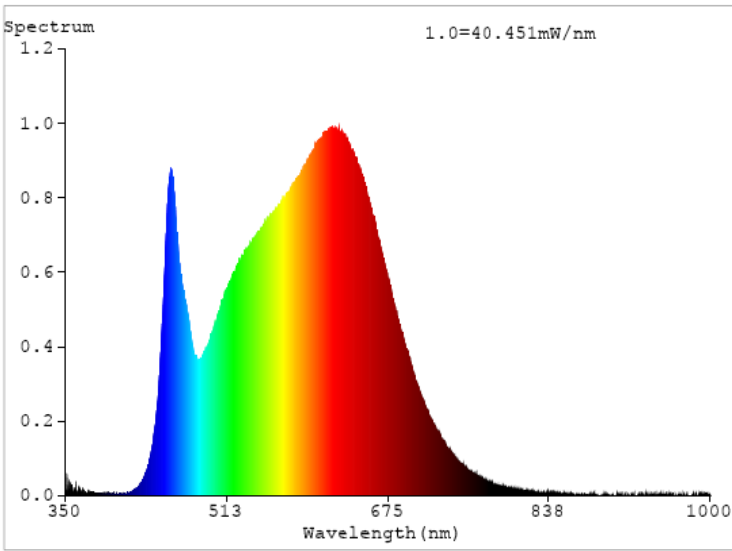
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	3472
Duv	0.0019
Chromaticity (x, y)	x=0.4049 y=0.3861
Chromaticity (u', v')	u'=0.2373 v'=0.5093
Color Rendering Index (CRI)	94.7
R9	75
Total Luminous (lm)	2209
Luminous Efficacy (lm/W)	107.17

Special Color Rendering Indices			
R1	96	R9	75
R2	99	R10	96
R3	98	R11	94
R4	93	R12	75
R5	95	R13	98
R6	96	R14	99
R7	93	R15	94
R8	88	--	--

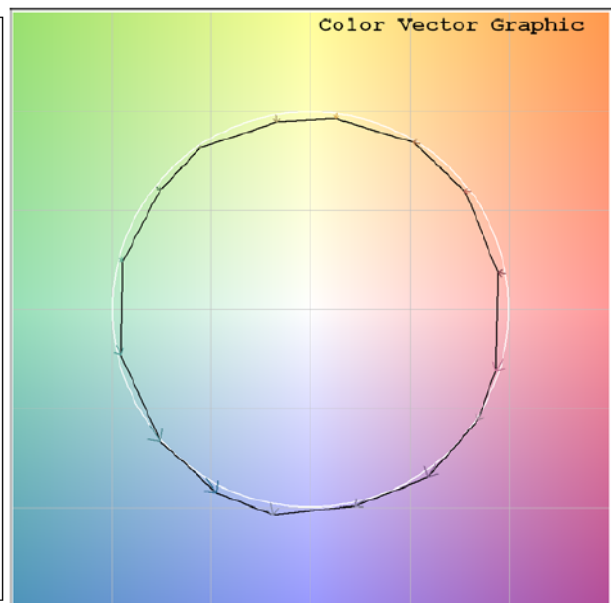
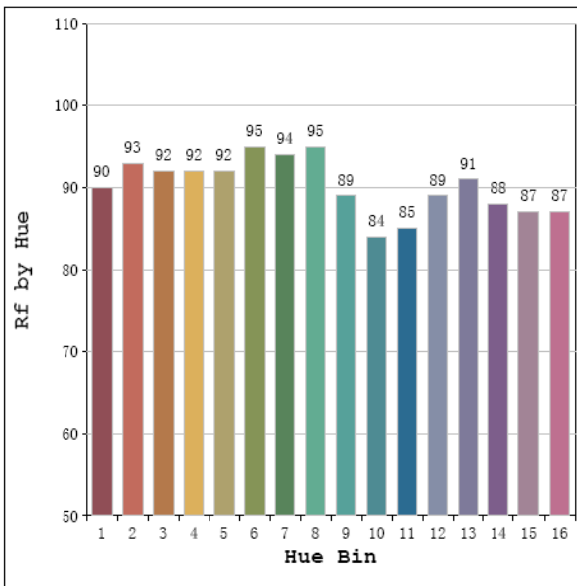
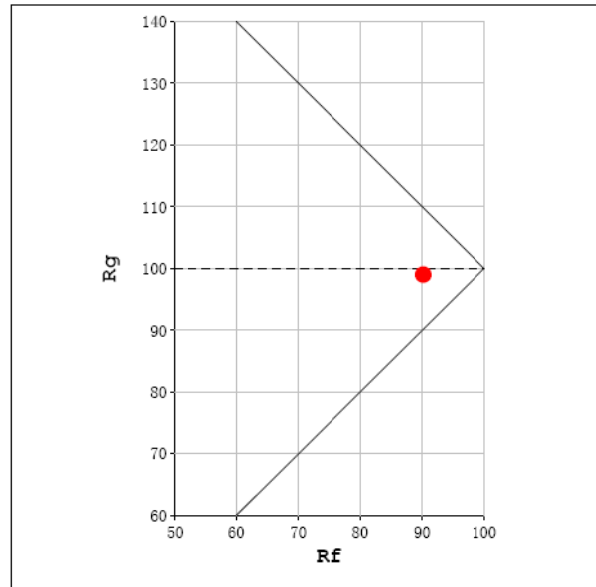
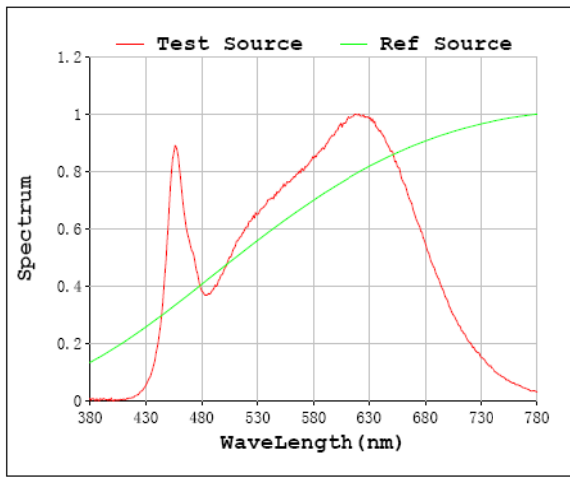
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2212
Luminous Efficacy (lm/W)	107.35

Spectral Power Distribution & Chromaticity Diagram



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Rf: 90 CCT: 3472 K u': 0.2373
 Rg: 99 Duv: -0.0019 v': 0.5093



2.1.3 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-09	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0053(C6R229FAUNVW)		4000K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009080001	120.0	60	0.172	20.52	0.995

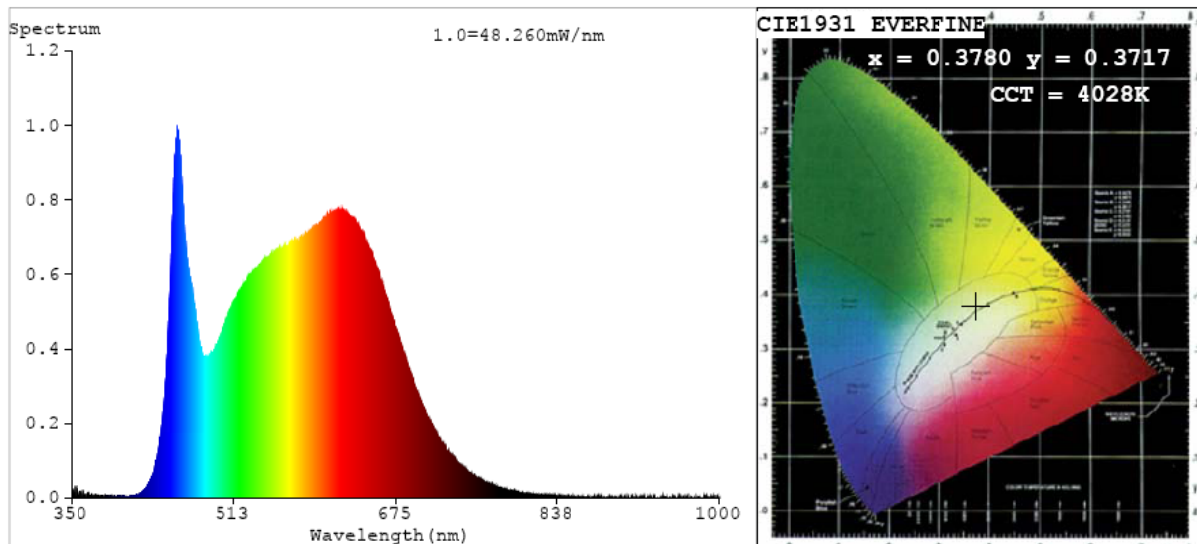
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4028
Duv	0.0017
Chromaticity (x, y)	x=0.3780 y=0.3717
Chromaticity (u', v')	u'=0.2255 v'=0.4990
Color Rendering Index (CRI)	94.7
R9	81
Total Luminous (lm)	2265
Luminous Efficacy (lm/W)	110.38

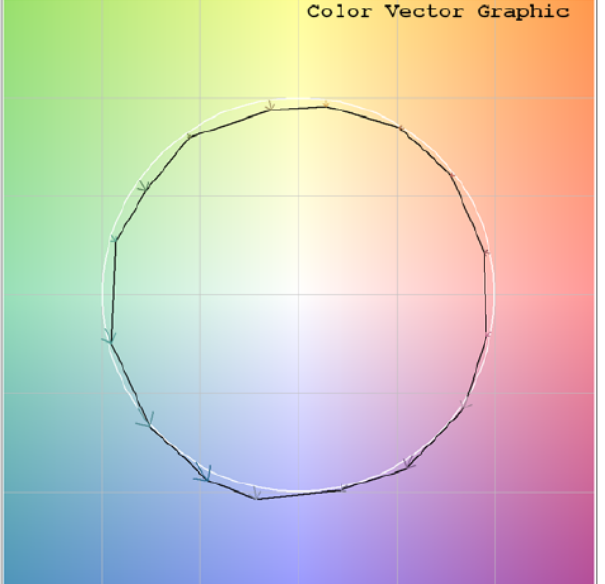
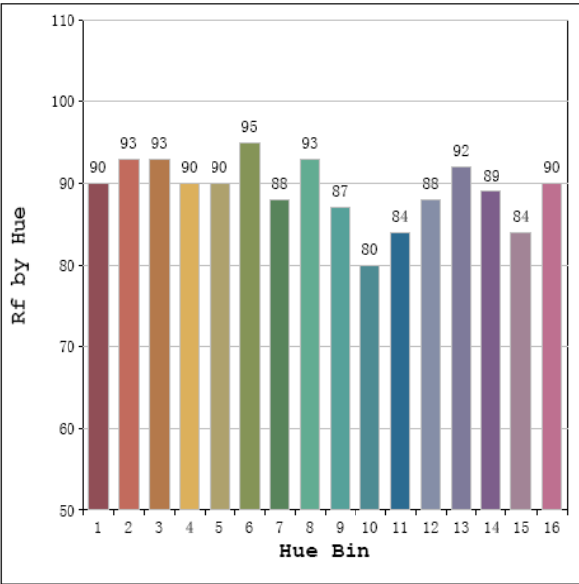
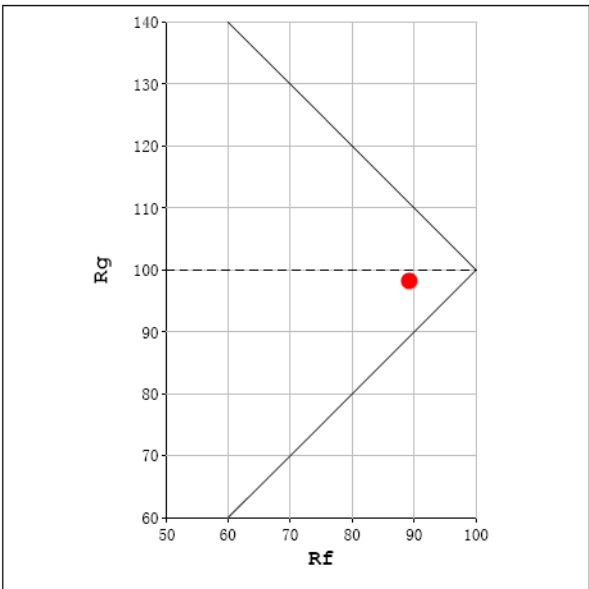
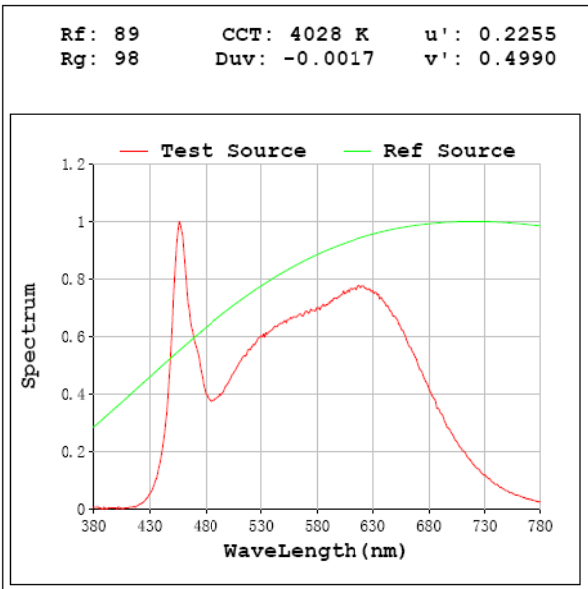
Special Color Rendering Indices			
R1	97	R9	81
R2	99	R10	98
R3	98	R11	93
R4	92	R12	70
R5	94	R13	99
R6	95	R14	100
R7	93	R15	95
R8	90	--	--

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2263
Luminous Efficacy (lm/W)	110.35

Spectral Power Distribution & Chromaticity Diagram



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2.1.4 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-09	Test Ambient:	25.3 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0053(C6R229FAUNVW)		5000K

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202009080001	120.0	60	0.177	21.13	0.995

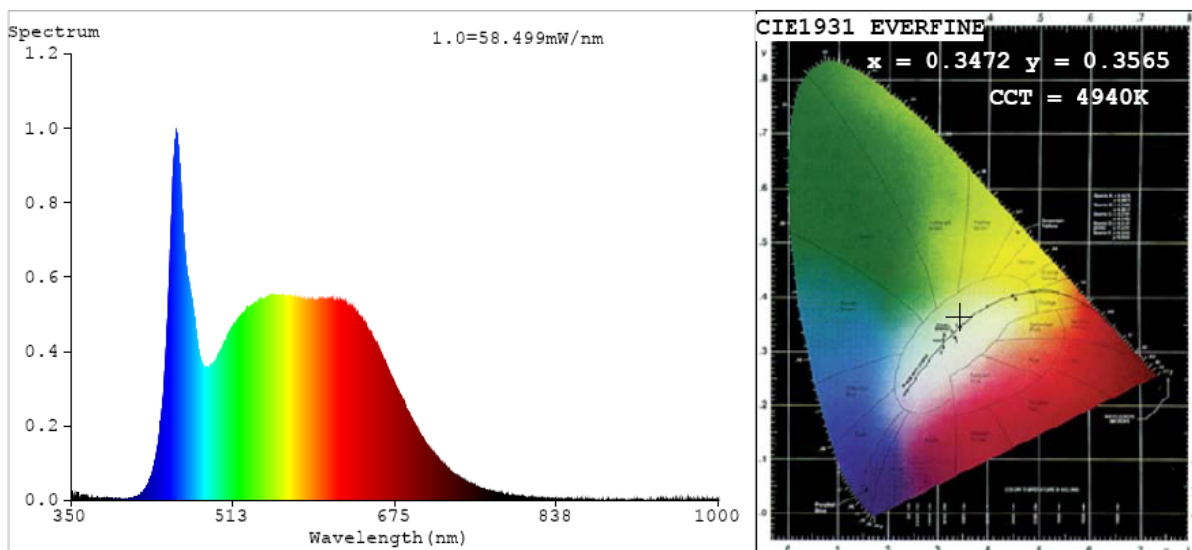
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120
Frequency (Hz)	60
CCT (K)	4940
Duv	0.0016
Chromaticity (x, y)	x=0.3472 y=0.3565
Chromaticity (u', v')	u'=0.2109 v'=0.4873
Color Rendering Index (CRI)	93.1
R9	77
Total Luminous (lm)	2213
Luminous Efficacy (lm/W)	104.71

Special Color Rendering Indices			
R1	95	R9	77
R2	99	R10	95
R3	98	R11	89
R4	88	R12	64
R5	91	R13	97
R6	94	R14	99
R7	92	R15	92
R8	88	--	--

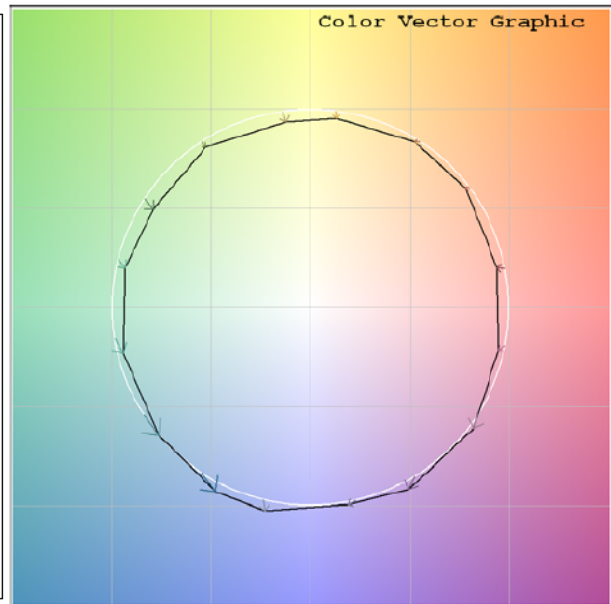
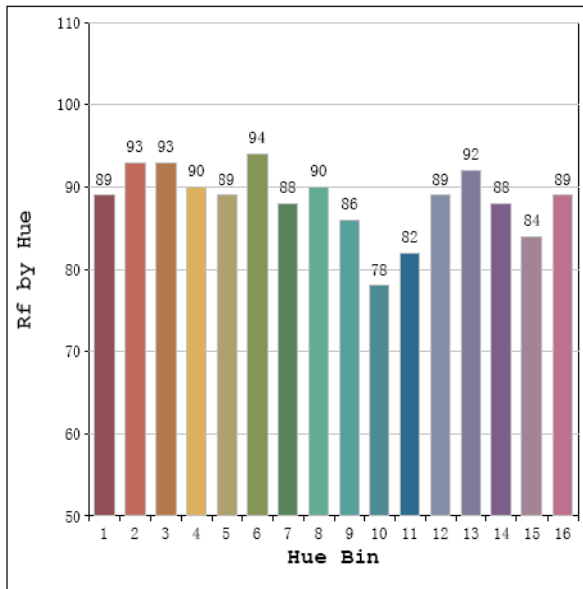
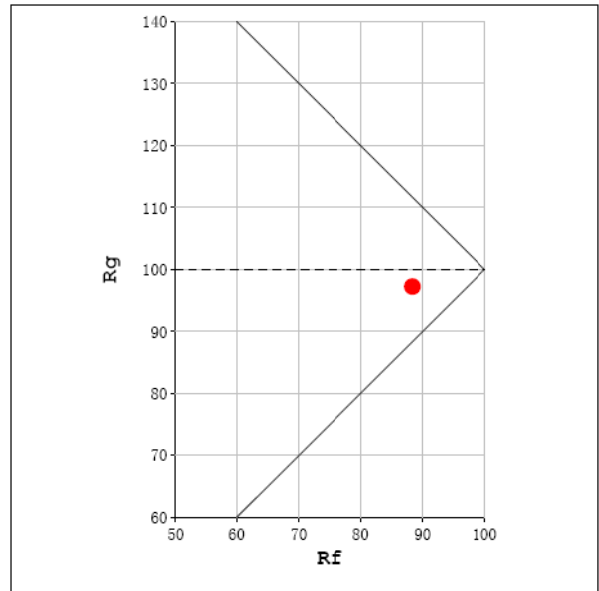
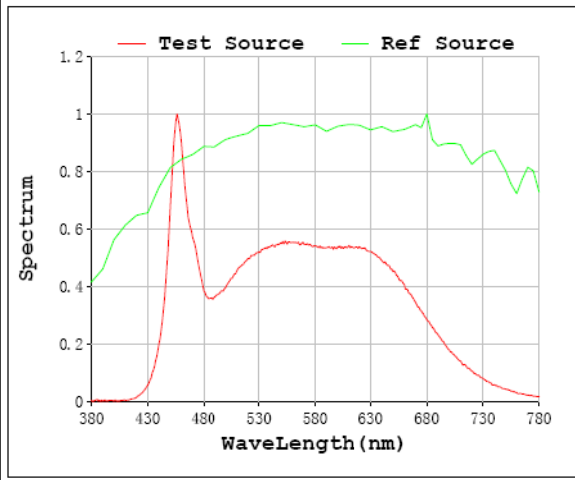
Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Total Luminous (lm)	2211
Luminous Efficacy (lm/W)	104.59

Spectral Power Distribution & Chromaticity Diagram

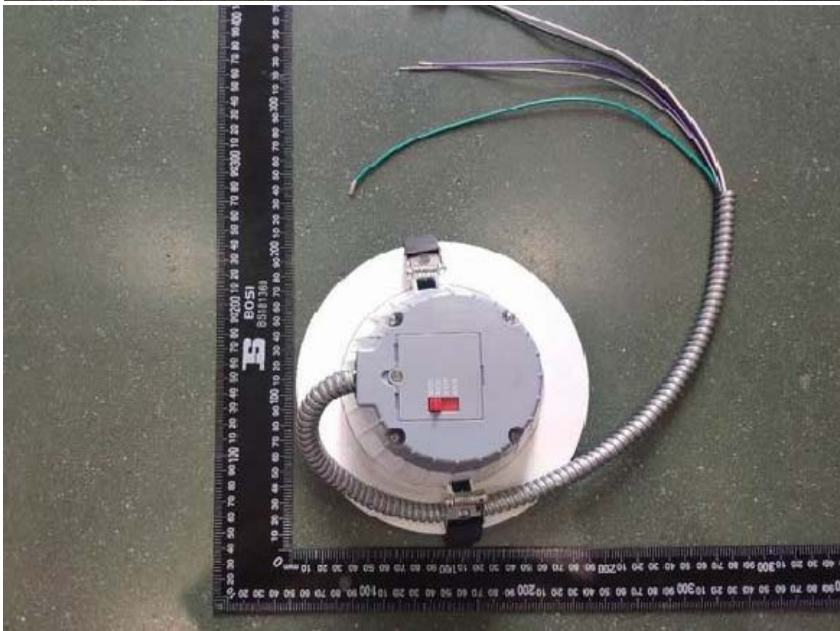


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Rf: 88 CCT: 4940 K u': 0.2109
 Rg: 97 Duv: 0.0016 v': 0.4873



3. Product Photo



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