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): DLR0051(R6R14840120WS)

Report Type:	Testing and Report According to IES LM-79-2008
Type of Luminaire:	Downlights
Report Date:	2019-09-30

Prepared By:

Test & Report By:

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Review By:

Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	14.0W
Rated Initial Lamp Lumen	1400 lm
Declared CCT	4000K

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 25ºC ±1ºC. 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 25ºC ±1ºC. 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 Electrical, Photometric and Chromaticity Measurements

Test date	2019-09-28	**Test Ambient:**	25.5 ºC
Test Orientation	As intended	**Stabilization Time (min)**	90
Model Number	DLR0051(R6R14840120WS)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250035	120.0	60	0.1150	13.60	0.980

Chromaticity Measurement - Sphere-Spectroradiometer Method:

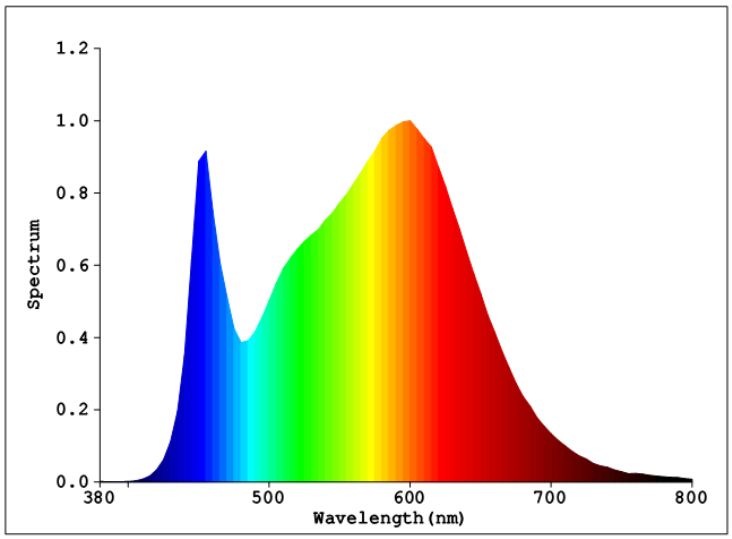
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3946
Duv	0.00128
Chromaticity (x, y)	x=0.3838 y=0.3816
Chromaticity (u', v')	u'=0.2254 v'=0.5042
Color Rendering Index (CRI)	84.8
R9	13

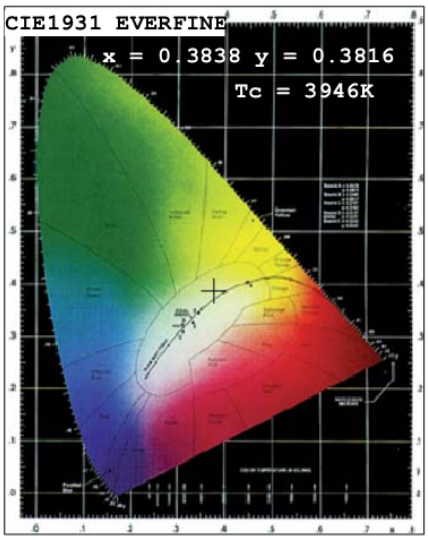
Special Color Rendering Indices			
R1	83	R9	13
R2	93	R10	82
R3	96	R11	82
R4	82	R12	66
R5	84	R13	86
R6	89	R14	99
R7	85	R15	77
R8	65	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1545.0
Luminous Efficacy (lm/W)	113.60
Beam Angle (°)	97.5
Center Beam Candle Power (cd)	649.4

Spectral Power Distribution & Chromaticity Diagram



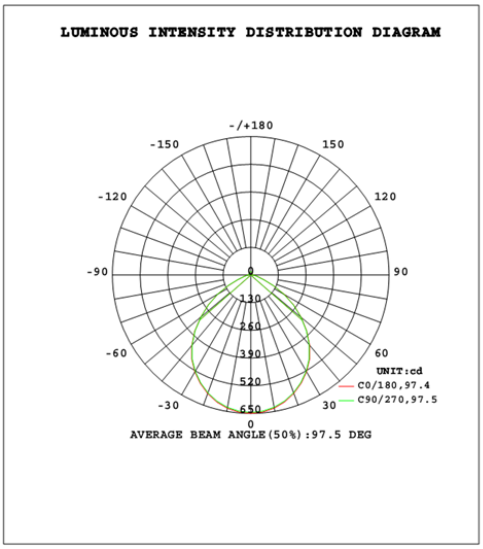


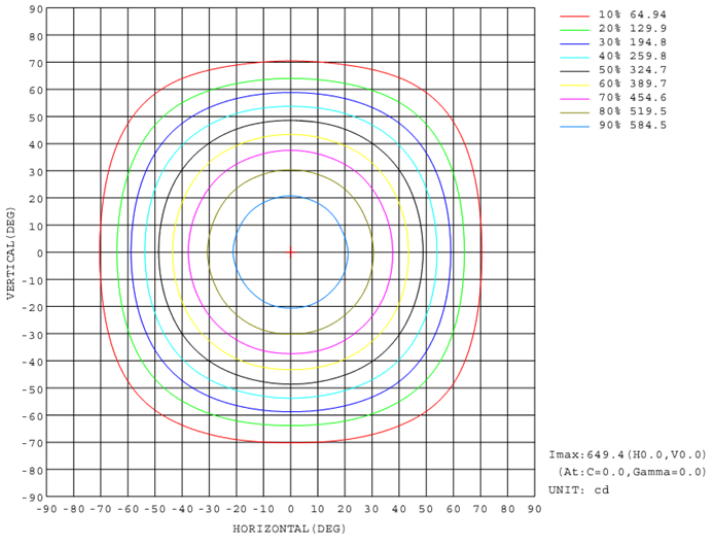
Zonal Lumen Tabulation

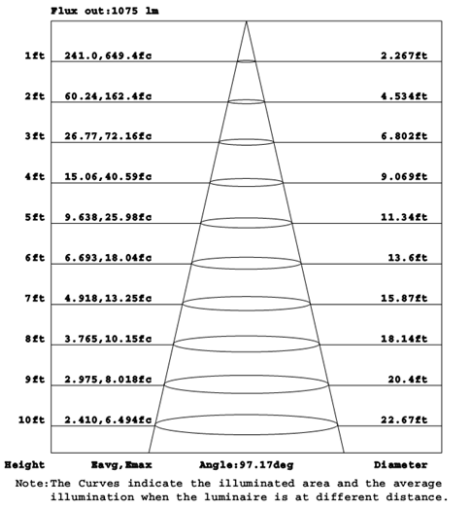
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	491.1	31.8%
0-40	790.3	51.2%
0-60	1293.0	83.7%
60-90	184.8	12.0%
70-100	75.9	4.9%
90-120	28.8	1.9%
0-90	1477.8	95.6%
90-180	67.3	4.4%
0-180	1545.0	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	61.0	3.9%	90-100	9.7	0.6%
10-20	173.0	11.2%	100-110	9.5	0.6%
20-30	257.1	16.6%	110-120	9.5	0.6%
30-40	299.2	19.4%	120-130	9.4	0.6%
40-50	284.8	18.4%	130-140	8.9	0.6%
50-60	217.8	14.1%	140-150	7.9	0.5%
60-70	118.7	7.7%	150-160	6.4	0.4%
70-80	46.2	3.0%	160-170	4.3	0.3%
80-90	20.0	1.3%	170-180	1.5	0.1%

Photometric Data







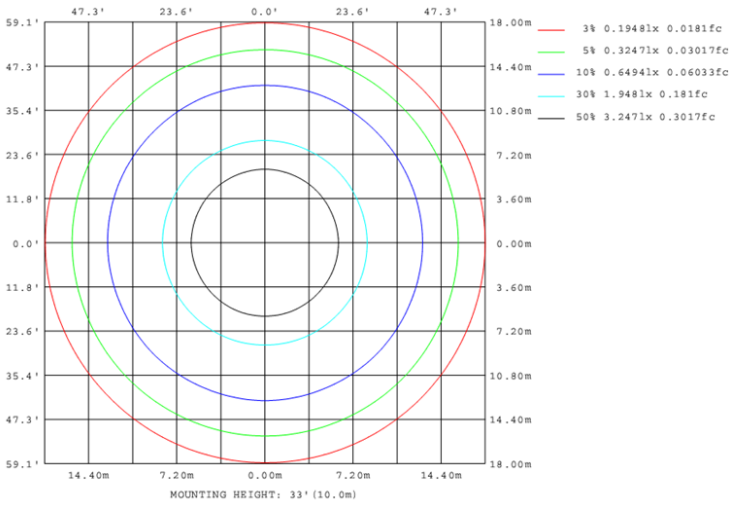
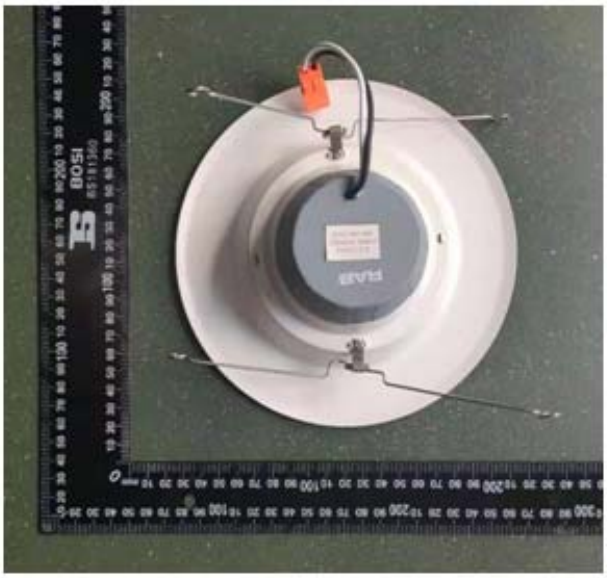


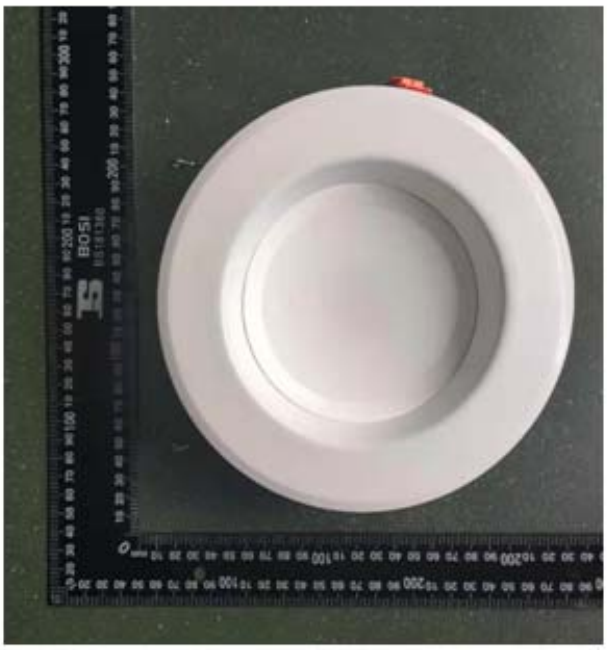
Table--1

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	649	648	647	646	645	645	645	644	649	648	647	646	645	645	645	644			
5	646	644	643	642	641	641	641	641	646	644	643	642	642	641	641	641			
10	635	633	632	631	630	631	630	630	635	633	632	631	631	630	630	630			
15	617	615	614	614	612	613	612	613	617	615	614	613	613	612	613	612			
20	592	591	589	589	588	589	587	588	592	590	590	588	589	588	588	587			
25	561	560	558	559	557	558	557	558	562	559	559	558	559	557	558	556			
30	524	524	521	522	521	522	521	521	525	523	523	522	522	521	522	520			
35	482	482	479	481	479	480	479	480	483	481	481	479	481	479	480	478			
40	430	431	428	430	428	429	427	428	431	428	429	427	429	427	428	427			
45	372	373	370	372	370	371	368	370	373	370	371	369	371	369	371	369			
50	310	307	308	306	308	305	307	304	307	308	306	308	305	308	305	308			
55	247	245	246	244	245	243	244	242	244	245	243	245	243	245	243	245			
60	182	181	181	180	179	179	178	178	180	179	179	179	179	180	180	181			
65	118	119	117	118	116	117	115	116	118	116	117	116	117	116	119	117			
70	67.7	68.3	66.8	67.3	66.0	66.9	65.7	66.5	67.1	65.8	66.9	66.1	67.4	66.7	68.2	67.3			
75	40.5	40.9	40.2	40.4	39.7	40.0	39.3	39.6	39.8	39.2	39.7	39.4	40.0	39.7	40.5	40.1			
80	28.6	28.9	28.5	28.7	28.3	28.3	27.9	27.8	27.9	27.5	27.7	27.7	28.1	28.1	28.4	28.4			
85	18.0	18.2	17.8	17.9	17.3	17.6	17.2	17.4	18.1	17.8	18.2	18.0	18.4	18.3	18.7	18.4			
90	8.80	8.79	8.72	8.71	8.69	8.71	8.71	8.71	9.55	9.50	9.48	9.48	9.47	9.47	9.48	9.49			
95	8.40	8.38	8.34	8.32	8.32	8.32	8.32	8.31	9.48	9.44	9.41	9.41	9.40	9.40	9.40	9.41			
100	8.26	8.24	8.20	8.19	8.18	8.19	8.19	8.18	9.56	9.53	9.51	9.50	9.48	9.48	9.47	9.49			
105	8.30	8.28	8.26	8.24	8.23	8.23	8.25	8.23	9.76	9.73	9.71	9.70	9.68	9.69	9.68	9.69			
110	8.50	8.47	8.45	8.44	8.44	8.43	8.45	8.44	10.1	10.0	10.0	10.0	9.99	10.0	9.99	10.0			
115	8.82	8.79	8.77	8.75	8.76	8.75	8.76	8.75	10.5	10.4	10.4	10.4	10.4	10.4	10.4	10.4			
120	9.25	9.22	9.21	9.18	9.19	9.17	9.20	9.17	10.9	10.8	10.8	10.8	10.8	10.8	10.8	10.8			
125	9.73	9.70	9.68	9.66	9.67	9.65	9.67	9.64	11.3	11.3	11.3	11.3	11.2	11.3	11.2	11.3			
130	10.3	10.2	10.2	10.2	10.2	10.2	10.2	10.2	11.8	11.8	11.7	11.7	11.7	11.7	11.7	11.7			
135	10.8	10.8	10.8	10.7	10.7	10.7	10.7	10.7	12.3	12.3	12.2	12.2	12.2	12.2	12.2	12.2			
140	11.4	11.4	11.4	11.3	11.3	11.3	11.3	11.3	12.9	12.8	12.8	12.8	12.8	12.8	12.7	12.8			
145	12.0	12.0	12.0	11.9	12.0	11.9	12.0	11.9	13.4	13.4	13.3	13.3	13.3	13.3	13.3	13.3			
150	12.7	12.7	12.6	12.6	12.6	12.6	12.6	12.6	14.0	13.9	13.9	13.9	13.9	13.9	13.9	13.9			
155	13.4	13.4	13.4	13.3	13.3	13.3	13.3	13.3	14.6	14.5	14.5	14.5	14.4	14.5	14.4	14.4			
160	14.2	14.1	14.1	14.1	14.1	14.1	14.1	14.0	15.1	15.1	15.0	15.0	15.0	15.0	15.0	15.0			
165	14.9	14.8	14.8	14.8	14.8	14.8	14.8	14.8	15.6	15.5	15.5	15.5	15.5	15.5	15.4	15.5			
170	15.5	15.5	15.4	15.4	15.4	15.4	15.4	15.4	16.0	15.9	15.9	15.8	15.8	15.8	15.8	15.8			
175	16.0	15.9	15.9	15.9	15.9	15.8	15.8	15.8	16.2	16.1	16.1	16.1	16.1	16.0	16.0	16.0			
180	16.2	16.2	16.1	16.1	16.1	16.1	16.1	16.1	16.3	16.2	16.2	16.1	16.1	16.1	16.1	16.1			

3. Product Photo





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