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): DLR0050(R6R14835120WS)

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:

Engineer: Sun Fangfang

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	3500K

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	DLR0050(R6R14835120WS)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250034	120.0	60	0.1170	13.90	0.983

Chromaticity Measurement - Sphere-Spectroradiometer Method:

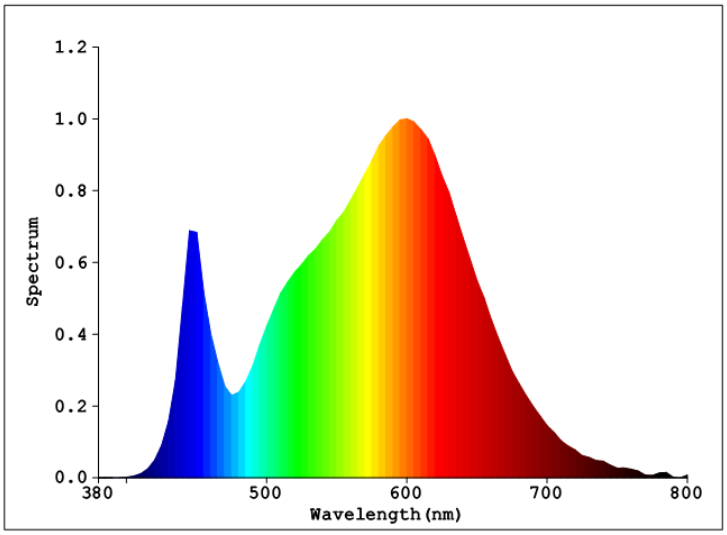
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3472
Duv	0.00113
Chromaticity (x, y)	x=0.4081y=0.3947
Chromaticity (u', v')	u'=0.2359 v'=0.5133
Color Rendering Index (CRI)	83.2
R9	8

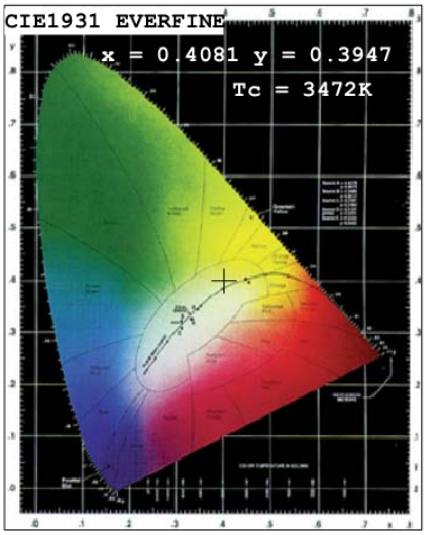
Special Color Rendering Indices			
R1	81	R9	8
R2	89	R10	76
R3	96	R11	82
R4	83	R12	69
R5	82	R13	83
R6	86	R14	98
R7	85	R15	74
R8	63	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1501.1
Luminous Efficacy (lm/W)	107.99
Beam Angle (°)	97.4
Center Beam Candle Power (cd)	630.2

Spectral Power Distribution & Chromaticity Diagram





Zonal Lumen Tabulation

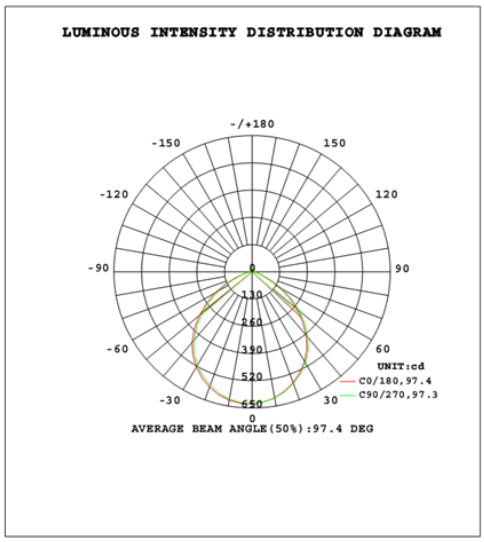
Zonal Lumen Summary

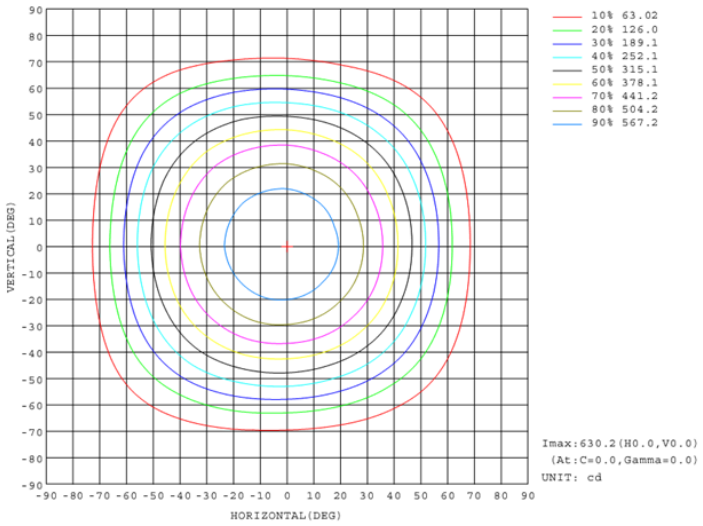
Zone	Lumens	% Luminaire
0-30	477.5	31.8%
0-40	768.3	51.2%
0-60	1256.0	83.7%
60-90	179.4	12.0%
70-100	73.9	4.9%
90-120	28.2	1.9%
0-90	1435.4	95.6%
90-180	65.7	4.4%
0-180	1501.1	100.0%

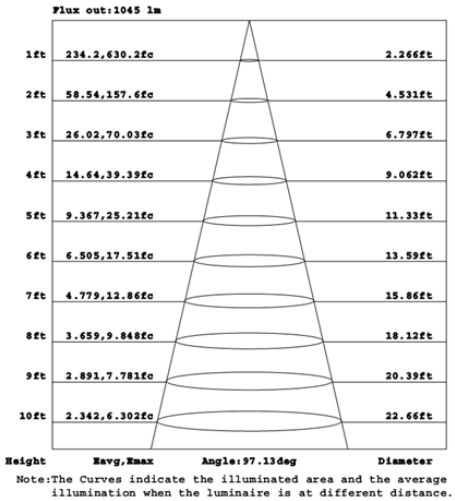
Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	59.3	4.0%	90-100	9.6	0.6%
10-20	168.2	11.2%	100-110	9.3	0.6%
20-30	250.0	16.7%	110-120	9.3	0.6%
30-40	290.8	19.4%	120-130	9.2	0.6%
40-50	276.5	18.4%	130-140	8.7	0.6%
50-60	211.1	14.1%	140-150	7.8	0.5%
60-70	115.1	7.7%	150-160	6.3	0.4%
70-80	45.0	3.0%	160-170	4.2	0.3%
80-90	19.4	1.3%	170-180	1.5	0.1%

Photometric Data







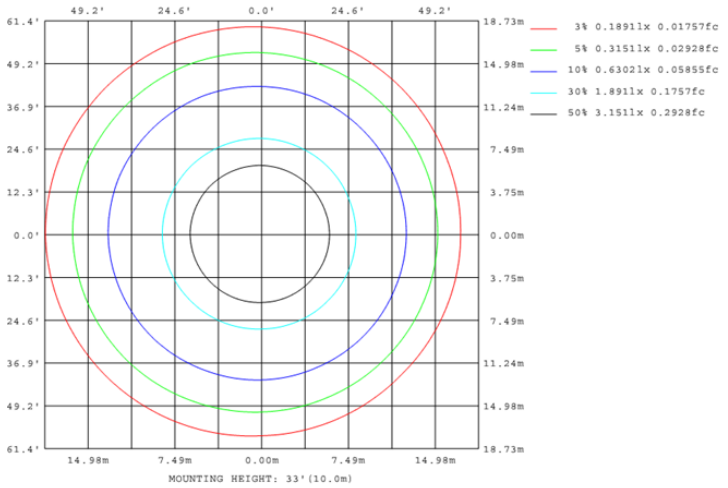
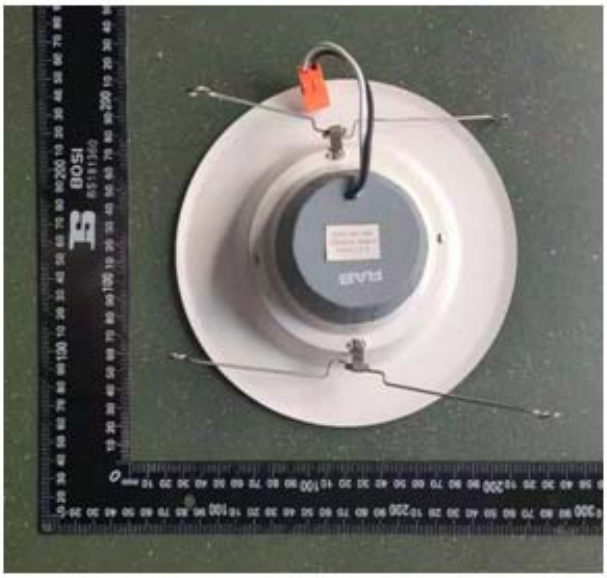


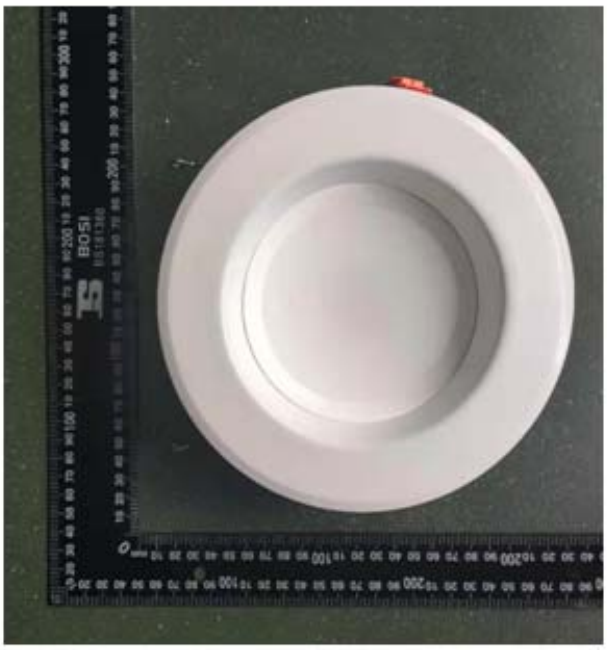
Table--1

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	630	629	628	628	628	628	628	627	630	629	628	628	628	628	628	627			
5	623	622	621	623	623	624	625	626	630	629	628	627	626	624	623	621			
10	610	609	608	610	611	614	616	618	622	621	620	620	617	614	611	608			
15	589	588	587	590	592	597	599	603	607	607	606	603	600	596	593	589			
20	563	562	561	564	568	573	576	581	586	585	584	581	578	572	568	563			
25	531	530	529	533	537	543	548	553	558	558	557	553	549	542	537	531			
30	493	492	492	496	501	508	513	519	525	525	524	519	515	507	501	494			
35	449	449	448	454	459	467	473	480	486	486	485	480	475	465	459	451			
40	395	395	395	401	407	417	424	433	440	439	439	432	426	415	407	398			
45	336	334	336	341	350	361	369	378	386	385	385	377	370	357	349	339			
50	274	270	274	279	289	297	309	316	324	328	324	319	306	297	284	278			
55	211	208	212	217	227	236	249	256	264	268	263	258	246	236	223	216			
60	145	145	146	154	161	174	186	195	202	205	201	195	184	172	161	151			
65	88.7	88.3	88.8	95.8	103	114	123	133	140	140	138	130	123	111	103	93.7			
70	51.0	50.7	51.0	54.8	58.8	66.0	71.5	78.3	82.9	82.1	81.1	75.3	70.5	63.3	58.7	53.5			
75	32.3	32.3	32.5	34.3	36.0	39.2	41.5	44.6	46.6	46.3	45.8	43.0	40.9	37.7	35.7	33.4			
80	23.7	23.9	24.0	25.2	26.1	27.6	28.4	29.2	30.1	29.9	29.7	28.8	28.2	27.0	26.0	24.8			
85	13.3	13.5	13.6	14.8	15.8	17.6	18.7	20.1	21.6	21.3	21.2	19.9	18.9	17.2	16.1	14.8			
90	8.26	8.25	8.25	8.30	8.35	8.46	8.66	9.43	10.9	10.7	10.6	9.71	9.36	9.28	9.26	9.23			
95	8.00	8.00	8.00	8.03	8.06	8.10	8.13	8.17	9.24	9.22	9.20	9.18	9.19	9.22	9.21	9.22			
100	7.96	7.97	7.99	7.99	8.00	7.99	8.00	7.99	9.24	9.23	9.21	9.23	9.25	9.30	9.31	9.33			
105	8.09	8.10	8.11	8.10	8.10	8.06	8.04	8.00	9.37	9.36	9.34	9.38	9.42	9.48	9.51	9.55			
110	8.34	8.35	8.36	8.34	8.33	8.26	8.22	8.15	9.61	9.61	9.60	9.66	9.69	9.78	9.82	9.87			
115	8.69	8.71	8.72	8.70	8.67	8.58	8.52	8.44	9.93	9.93	9.94	10.0	10.1	10.2	10.2	10.3			
120	9.11	9.13	9.16	9.13	9.10	9.00	8.93	8.82	10.3	10.3	10.3	10.4	10.5	10.6	10.6	10.7			
125	9.59	9.62	9.66	9.61	9.59	9.49	9.40	9.30	10.7	10.7	10.8	10.8	10.9	11.0	11.1	11.1			
130	10.1	10.1	10.2	10.1	10.1	10.00	9.92	9.79	11.2	11.2	11.2	11.3	11.4	11.5	11.5	11.6			
135	10.7	10.7	10.7	10.7	10.7	10.5	10.5	10.3	11.6	11.7	11.7	11.8	11.9	12.0	12.0	12.1			
140	11.3	11.3	11.3	11.3	11.3	11.1	11.0	10.9	12.2	12.2	12.2	12.3	12.4	12.5	12.5	12.6			
145	11.9	11.9	12.0	11.9	11.9	11.8	11.7	11.5	12.7	12.7	12.7	12.8	12.9	13.0	13.1	13.2			
150	12.6	12.6	12.6	12.6	12.6	12.4	12.3	12.2	13.2	13.3	13.3	13.4	13.5	13.6	13.6	13.7			
155	13.3	13.3	13.3	13.3	13.2	13.1	13.0	12.9	13.8	13.8	13.9	14.0	14.0	14.1	14.2	14.2			
160	13.9	14.0	14.0	14.0	13.9	13.8	13.7	13.6	14.4	14.4	14.4	14.5	14.6	14.7	14.7	14.7			
165	14.6	14.6	14.6	14.6	14.6	14.5	14.4	14.3	14.9	14.9	14.9	15.0	15.0	15.1	15.1	15.1			
170	15.1	15.1	15.2	15.1	15.1	15.0	15.0	14.9	15.3	15.3	15.3	15.4	15.4	15.5	15.5	15.5			
175	15.5	15.5	15.5	15.5	15.5	15.5	15.4	15.4	15.6	15.6	15.6	15.6	15.6	15.7	15.7	15.6			
180	15.7	15.7	15.7	15.7	15.8	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.6			

3. Product Photo





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