

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): DLR0048(R6R14827120WS)

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

**Type of
Luminaire:** Downlights

Report Date: 2019-09-30

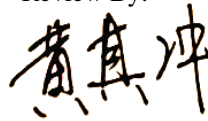
Prepared By:

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	2700K

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

<p>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</p> <p>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.</p>
<p>2) Chromaticity Measurement – Sphere-Spectroradiometer Method:</p> <p>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.</p>
<p>3) Electrical Measurements:</p> <p>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.</p>

2.1 Electrical, Photometric and Chromaticity Measurements

Test date	2019-09-28	Test Ambient:	25.5 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLR0048(R6R14827120WS)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250032	120.0	60	0.1150	13.60	0.979

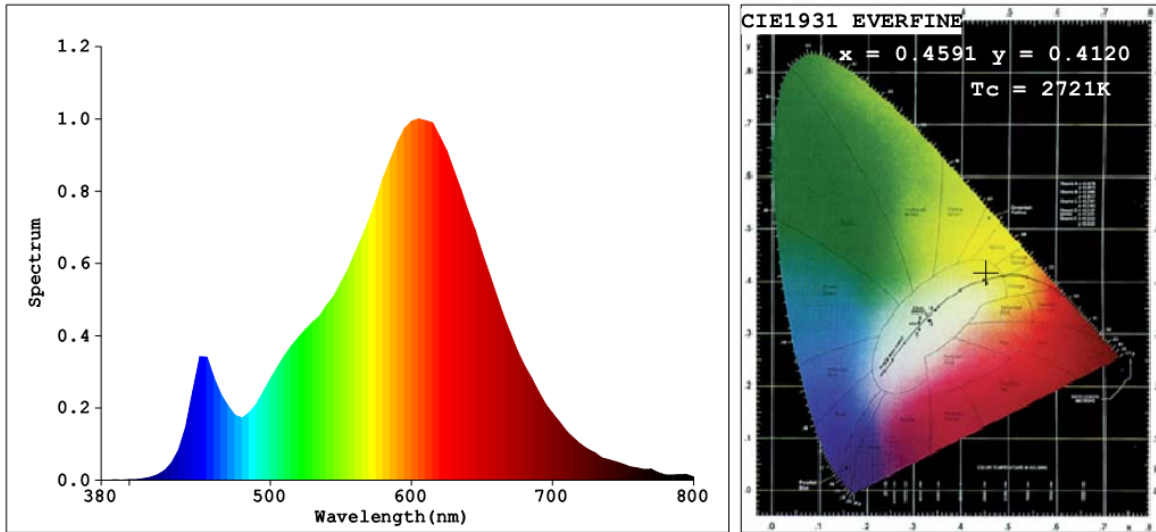
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	8
Frequency (Hz)	60	R2	92	R10	82
CCT (K)	2721	R3	95	R11	79
Duv	0.00058	R4	80	R12	75
Chromaticity (x, y)	x=0.4591 y=0.4120	R5	81	R13	83
Chromaticity (u', v')	u'=0.2614 v'=0.5278	R6	91	R14	98
Color Rendering Index (CRI)	82.3	R7	82	R15	73
R9	8	R8	57	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1438.3
Luminous Efficacy (lm/W)	105.76
Beam Angle (°)	97.7
Center Beam Candle Power (cd)	600.2

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	456.1	31.7%
0-40	734.2	51.0%
0-60	1202.9	83.6%
60-90	172.6	12.0%
70-100	70.4	4.9%
90-120	27.0	1.9%
0-90	1375.5	95.6%
90-180	62.8	4.4%
0-180	1438.3	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	56.6	3.9%	90-100	9.1	0.6%
10-20	160.7	11.2%	100-110	8.9	0.6%
20-30	238.8	16.6%	110-120	8.9	0.6%
30-40	278.0	19.3%	120-130	8.8	0.6%
40-50	265.2	18.4%	130-140	8.3	0.6%
50-60	203.6	14.2%	140-150	7.4	0.5%
60-70	111.4	7.7%	150-160	6.0	0.4%
70-80	42.8	3.0%	160-170	4.0	0.3%
80-90	18.5	1.3%	170-180	1.4	0.1%

Photometric Data

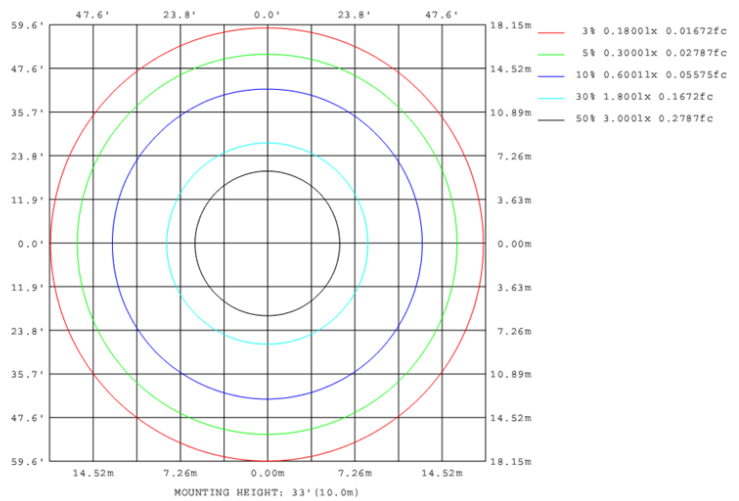
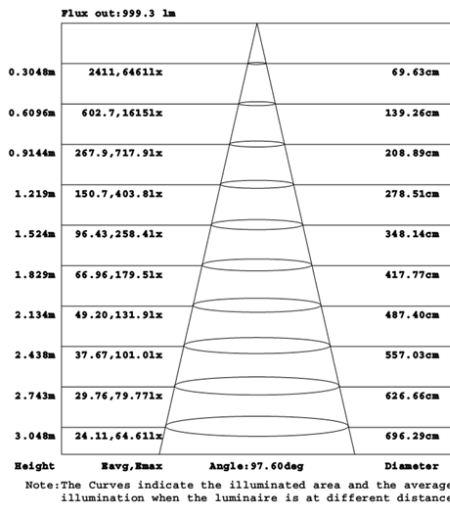
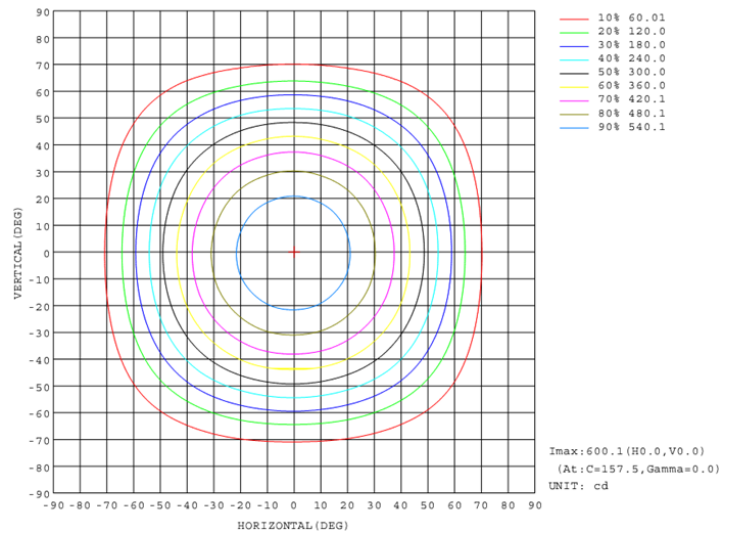
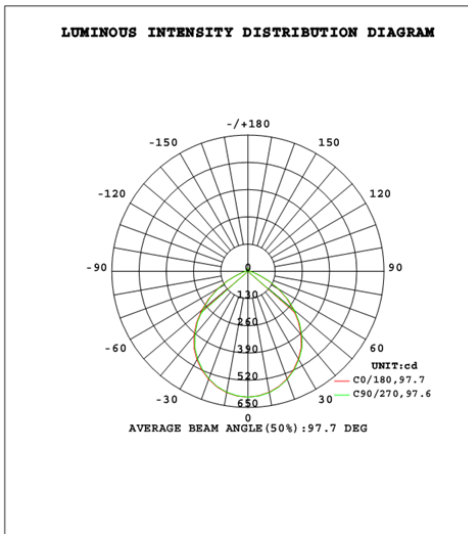
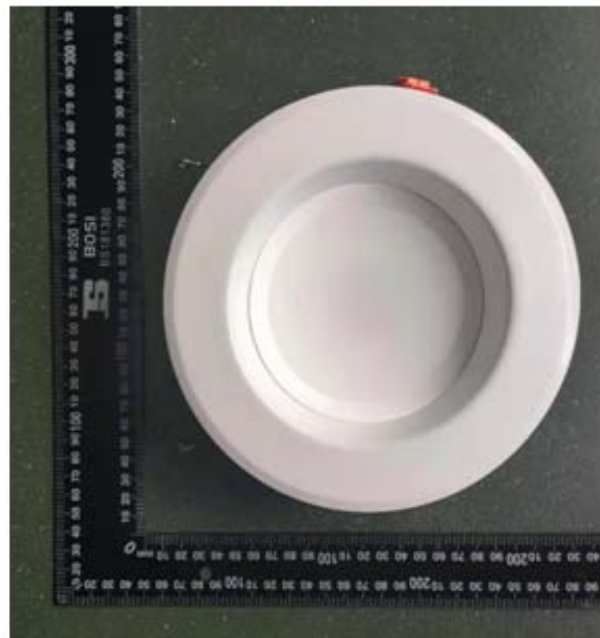
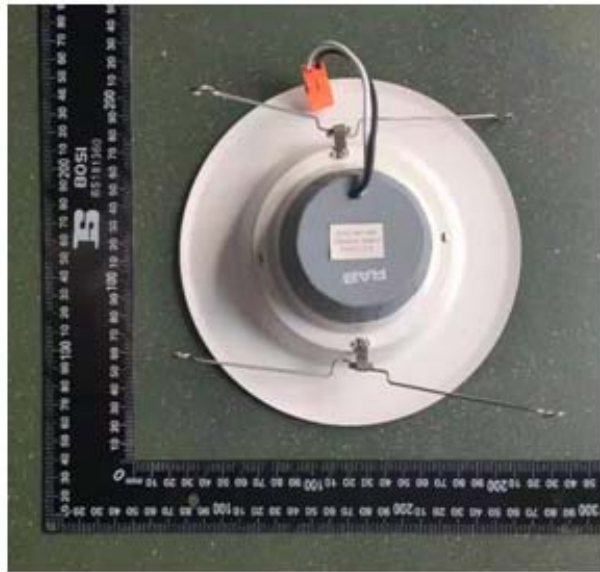


Table--1

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	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600				
5	596	597	597	597	597	598	598	598	597	597	596	596	596	596	596	596				
10	586	587	587	588	587	588	588	588	588	587	586	585	586	585	586	586				
15	569	570	570	571	571	572	572	572	571	570	570	568	568	568	568	568				
20	545	547	547	549	549	550	550	550	549	547	547	545	545	544	545	545				
25	517	519	519	521	521	523	522	523	521	519	518	516	516	515	516	516				
30	483	485	485	487	487	489	489	490	488	485	485	482	482	480	482	482				
35	443	446	446	449	449	451	451	451	449	446	446	443	442	441	442	442				
40	395	399	399	402	402	405	404	404	402	398	398	394	394	392	394	393				
45	341	345	345	349	349	352	350	351	348	344	344	340	340	338	340	339				
50	285	284	289	289	292	292	293	291	289	288	283	284	280	281	279	283				
55	226	227	230	230	233	233	234	232	230	229	226	226	223	223	222	225				
60	167	168	170	172	174	174	174	172	171	170	167	166	164	164	164	166				
65	107	110	110	113	113	115	113	114	112	109	109	106	107	105	106	106				
70	61.0	63.1	63.2	65.2	64.9	66.1	64.8	65.0	64.3	62.1	62.0	60.0	60.5	59.3	60.5	60.3				
75	36.2	37.2	37.3	38.2	38.0	38.6	37.8	37.9	37.5	36.5	36.5	35.6	35.8	35.3	35.9	35.8				
80	25.7	26.1	26.0	26.3	26.2	26.4	26.2	26.3	26.3	25.9	25.8	25.3	25.4	25.2	25.6	25.6				
85	16.1	16.6	16.5	17.0	17.0	17.3	16.9	16.9	17.3	16.7	16.7	16.2	16.4	16.1	16.4	16.4				
90	8.15	8.18	8.20	8.24	8.22	8.24	8.19	8.18	8.91	8.92	8.91	8.90	8.88	8.89	8.88	8.90				
95	7.81	7.83	7.83	7.84	7.83	7.82	7.80	7.80	8.83	8.85	8.84	8.84	8.83	8.83	8.83	8.83				
100	7.71	7.71	7.72	7.71	7.71	7.70	7.68	7.67	8.88	8.92	8.91	8.92	8.90	8.91	8.90	8.91				
105	7.78	7.76	7.77	7.75	7.75	7.73	7.72	7.71	9.05	9.09	9.08	9.10	9.08	9.09	9.08	9.09				
110	7.96	7.94	7.94	7.91	7.91	7.89	7.88	7.88	9.32	9.36	9.35	9.38	9.36	9.37	9.35	9.36				
115	8.26	8.24	8.24	8.20	8.20	8.16	8.17	8.15	9.66	9.70	9.69	9.72	9.71	9.72	9.69	9.71				
120	8.65	8.62	8.62	8.58	8.58	8.54	8.55	8.53	10.0	10.1	10.1	10.1	10.1	10.1	10.1	10.1				
125	9.09	9.06	9.06	9.02	9.02	8.98	8.99	8.97	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5				
130	9.57	9.54	9.53	9.49	9.49	9.44	9.46	9.44	10.9	10.9	10.9	11.0	10.9	11.0	10.9	10.9				
135	10.1	10.1	10.1	10.0	10.0	9.97	9.97	9.96	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4				
140	10.7	10.6	10.6	10.6	10.6	10.5	10.5	10.5	11.8	11.9	11.9	11.9	11.9	11.9	11.9	11.9				
145	11.3	11.2	11.2	11.2	11.2	11.1	11.1	11.1	12.3	12.4	12.4	12.4	12.4	12.4	12.4	12.4				
150	11.9	11.8	11.9	11.8	11.8	11.8	11.8	11.7	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9				
155	12.5	12.5	12.5	12.4	12.4	12.4	12.4	12.4	13.4	13.4	13.4	13.5	13.5	13.5	13.4	13.4				
160	13.2	13.2	13.2	13.1	13.1	13.1	13.1	13.1	13.9	13.9	13.9	14.0	14.0	14.0	13.9	13.9				
165	13.8	13.8	13.8	13.7	13.7	13.7	13.7	13.7	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.3				
170	14.4	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7				
175	14.8	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.9	14.9	14.9	14.9	14.9	14.9	14.9	14.9				
180	15.0	15.0	15.0	15.0	15.0	14.9	14.9	14.9	15.0	15.0	15.0	15.0	15.0	14.9	14.9	14.9				

3. Product Photo



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