# 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): DLR0108(R4R8950120WS)

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

- **Type of Luminaire:** Downlights
- **Report Date:** 2020-09-15

**Prepared By:** 

Test & Report By:

Engineer: Sun Fangfang

**Review By:** 

Manager: Huang Qichong

1.1 Rated Values:						
Rated Voltage / Frequency	120Vac, 60 Hz					
Nominal Power	8.0W					
Rated Initial Lamp Lumen	700 lm					
Declared CCT	5000K					

## **1.2 Test Specifications:**

	1. Total Luminous Flux
	2. Luminous Distribution Intensity
	3. Luminous Efficacy
Test item	4. Correlated Color Temperature
	5. Color Rendering Index
	6. Chromaticity Coordinate
	7. Electrical Parameters
	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
Reference Standard	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  $25^{\circ}C \pm 1^{\circ}C$ , 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  $25^{\circ}C \pm 1^{\circ}C$ . 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 spherespectroradiometer system. The ambient temperature surrounding the sample was maintained at 25°C  $\pm$ 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.

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## 2.1.1 Electrical, Photometric and Chromaticity Measurements

Test date	2020-09-15	Test Ambient:	25.3 ℃
<b>Test Orientation</b>	As intended	Stabilization Time (min)	90
Model Number	DLR0108(R4R8950120WS)	5000K	

#### **Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	<b>Power Factor</b>
202009150023	120.0	60	0.063	7.51	0.980

#### **Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result		Special Color Rendering Indices							
Test Voltage (V)	120		R1	92	R9	72				
Frequency (Hz)	60		R2	95	R10	86				
CCT (K)	4853		R3	95	R11	90				
Duv	0.0029		R4	91	R12	64				
Chromaticity (x, y)	x=0.3501 y=0.3614		R5	90	R13	93				
Chromaticity (u', v')	u'=0.2110 v'=0.4901		R6	90	R14	97				
Color Rendering Index (CRI)	92.4		R7	96	R15	91				
R9	72		R8	89						

## **Photometric Measurement – Goniophotometer Method:**

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	792.42
Luminous Efficacy (lm/W)	105.52
Beam Angle (°)	95.6
Center Beam Candle Power (cd)	352.9

#### **Spectral Power Distribution & Chromaticity Diagram** CIE1931 EVERFINE Spectrum 1.2 1.0=19.026mW/nm = 0.3501 y = 0.3614х 4853K ССТ 1.0 0.8 0.6 0.4 0.2 0.0 350 513 1000 675 838 Wavelength(nm)

**T30** 

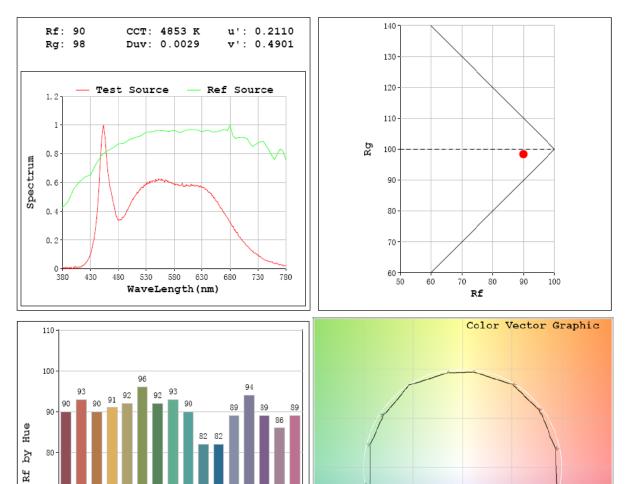
70

60

50

1 2 3 4 5 6

7 8 9 10 Hue Bin



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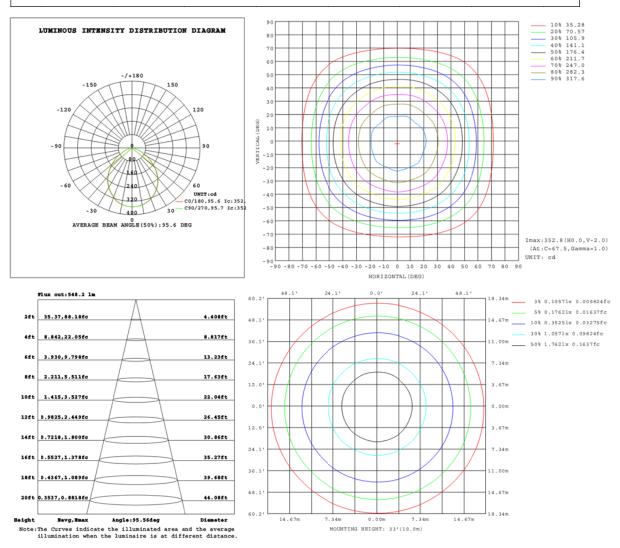
8 9 10 11 12 13 14 15 16

#### **Zonal Lumen Tabulation**

Zonal Lumen Summary										
Zone	Lumens	% Luminaire								
0-30	266.2	33.6%								
0-40	425.8	53.7%								
0-60	690.5	87.1%								
60-90	101.9	12.9%								
70-100	36.7	4.6%								
90-120	0.0	0.0%								
0-90	792.4	100.0%								
90-180	0.0	0.0%								
0-180	792.4	100.0%								

Lumens Per Zone												
Zone	Lumens	% Total	Zone	Lumens	% Total							
0-10	33.3	4.2%	90-100	0.0	0.0%							
10-20	94.3	11.9%	100-110	0.0	0.0%							
20-30	138.7	17.5%	110-120	0.0	0.0%							
30-40	159.6	20.1%	120-130	0.0	0.0%							
40-50	150.3	19.0%	130-140	0.0	0.0%							
50-60	114.4	14.4%	140-150	0.0	0.0%							
60-70	65.2	8.2%	150-160	0.0	0.0%							
70-80	25.9	3.3%	160-170	0.0	0.0%							
80-90	10.9	1.4%	170-180	0.0	0.0%							

#### **Photometric Data**



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Table1																UNI	F: cd	
C (DEG)																		
Y (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	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353	353		
5	351	352	352	352	352	352	351	351	350	349	349	349	349	350	350	351		
10	346	347	347	348	347	347	345	345	344	342	342	342	342	343	344	345		
15	336	338	339	339	338	338	336	335	333	332	331	331	332	332	334	335		
20	323	323	326	327	326	323	323	316	314	317	312	315	312	317	315	321		
25	306	304	309	306	309	304	305	299	297	298	293	297	293	299	297	304		
30	285	284	289	286	289	283	284	278	275	276	271	274	271	277	276	283		
35	261	261	266	263	265	260	260	254	251	251	246	249	247	252	252	258		
40	233	233	238	236	237	232	231	225	222	221	217	219	217	222	223	229		
45	200	202	206	204	206	201	199	194	190	189	185	186	185	190	191	197		
50	164	169	171	171	171	168	164	161	157	154	152	151	153	154	158	161		
55	131	135	137	138	136	135	130	128	125	121	120	119	120	121	125	128		
60	98.5	102	104	105	103	102	97.9	95.6	92.7	89.2	88.4	87.0	88.3	89.5	93.0	95.5		
65	67.6	71.0	72.2	73.5	72.0	70.6	67.2	64.9	62.5	59.5	58.8	57.6	59.0	59.7	62.9	65.0		
70	41.2	43.9	44.6	45.8	44.4	43.6	40.8	39.3	37.5	35.4	34.9	34.1	35.0	35.6	37.8	39.4		
75	24.1	25.4	25.8	26.4	25.7	25.2	23.8	23.0	22.1	21.1	20.8	20.4	20.9	21.2	22.3	23.2		
80	15.0	15.6	15.8	16.1	15.8	15.5	14.9	14.7	14.6	14.3	14.2	14.0	14.2	14.3	14.6	14.8		
85	10.5	11.1	11.3	11.4	11.2	10.9	10.3	9.85	9.76	9.14	8.94	8.74	9.01	9.26	9.91	10.4		
90	4.77	5.01	5.27	5.31	5.20	4.89	4.70	4.66	5.15	5.15	5.15	5.14	5.13	5.14	5.13	5.15		

## **3. Product Photo**



# \*\*\*\*\* END OF REPORT \*\*\*\*\*