

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): DLR0038(R4R8835120WS)

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

**Type of
Luminaire:** Downlights

Report Date: 2019-09-30

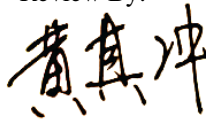
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	8.0W
Rated Initial Lamp Lumen	800 lm
Declared CCT	3500K

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:	25.6 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLR0038(R4R8835120WS)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250022	120.0	60	0.063	7.43	0.980

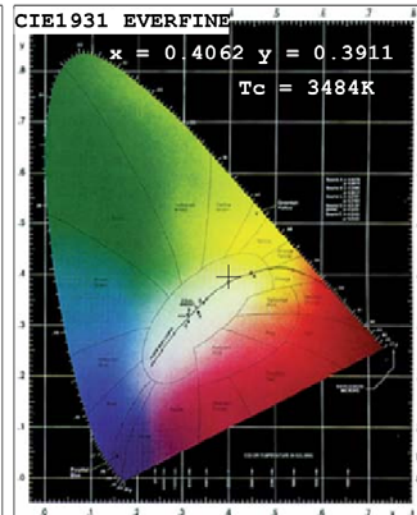
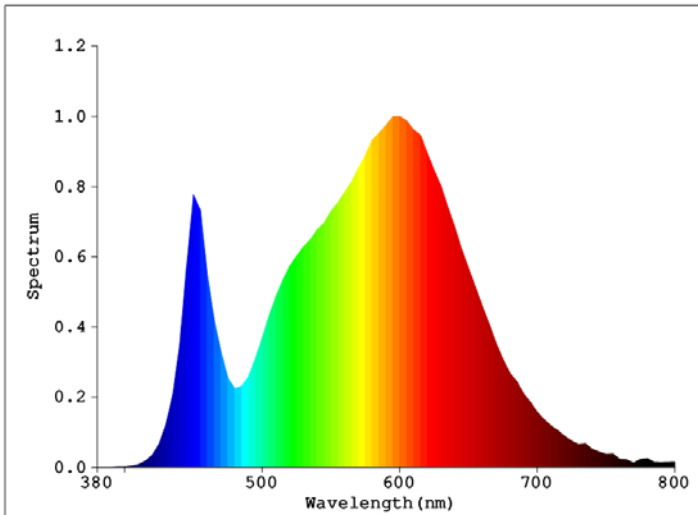
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	11
Frequency (Hz)	60	R2	89	R10	75
CCT (K)	3484	R3	95	R11	80
Duv	0.00001	R4	82	R12	64
Chromaticity (x, y)	x=0.4062 y=0.3911	R5	81	R13	83
Chromaticity (u', v')	u'=0.2361 v'=0.5116	R6	86	R14	97
Color Rendering Index (CRI)	82.9	R7	85	R15	75
R9	11	R8	63	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	862.45
Luminous Efficacy (lm/W)	116.08
Beam Angle (°)	95.4
Center Beam Candle Power (cd)	367.5

Spectral Power Distribution & Chromaticity Diagram

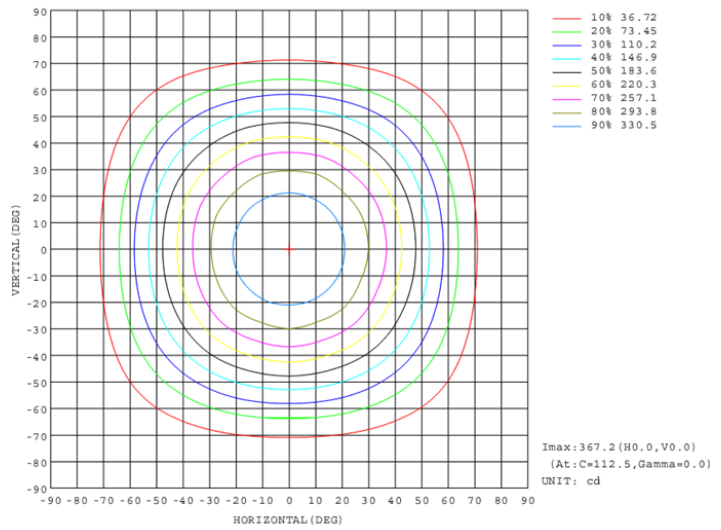
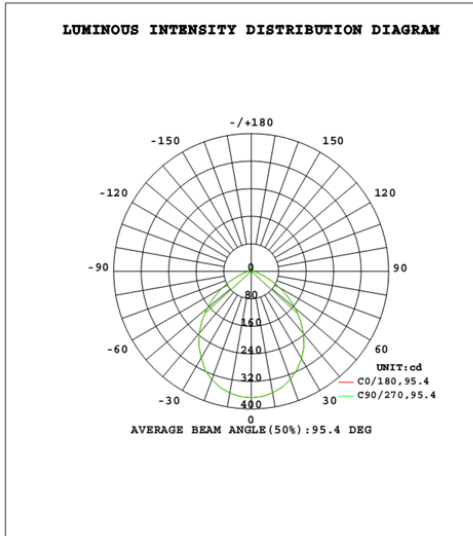


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	278.1	32.2%
0-40	444.2	51.5%
0-60	718.9	83.4%
60-90	105.9	12.3%
70-100	44.2	5.1%
90-120	16.2	1.9%
0-90	824.7	95.6%
90-180	37.7	4.4%
0-180	862.5	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	34.7	4.0%	90-100	5.5	0.6%
10-20	98.3	11.4%	100-110	5.4	0.6%
20-30	145.2	16.8%	110-120	5.4	0.6%
30-40	166.1	19.3%	120-130	5.3	0.6%
40-50	156.1	18.1%	130-140	5.0	0.6%
50-60	118.5	13.7%	140-150	4.4	0.5%
60-70	67.2	7.8%	150-160	3.6	0.4%
70-80	27.3	3.2%	160-170	2.4	0.3%
80-90	11.4	1.3%	170-180	0.8	0.1%

Photometric Data



Flux out: 600.3 lm

Height	Havg, Hmax	Angle: 95.39deg	Diameter
1ft	134.5, 367.5fc		2.198ft
2ft	33.64, 91.87fc		4.395ft
3ft	14.95, 40.83fc		6.593ft
4ft	8.409, 22.97fc		8.791ft
5ft	5.382, 14.70fc		10.99ft
6ft	3.737, 10.21fc		13.19ft
7ft	2.746, 7.499fc		15.38ft
8ft	2.102, 5.742fc		17.58ft
9ft	1.661, 4.537fc		19.78ft
10ft	1.345, 3.675fc		21.98ft

Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

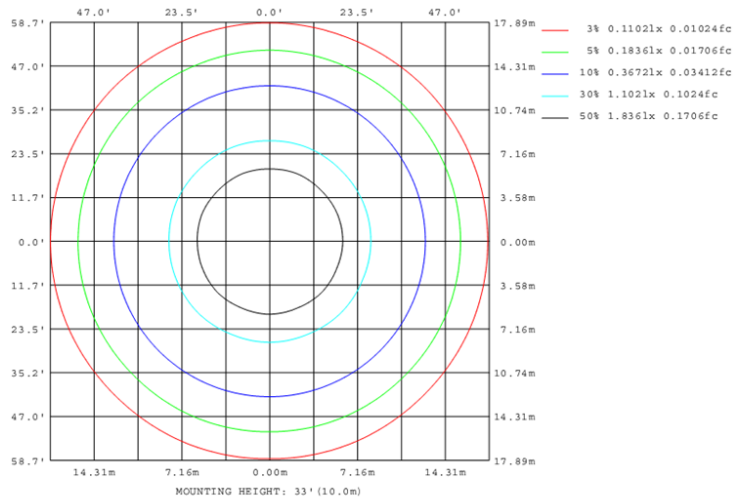


Table--1

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	367	367	367	367	367	367	367	367	367	367	367	367	367	367	367	367			
5	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365			
10	359	359	359	359	359	359	359	360	359	359	359	359	359	359	359	359			
15	348	349	348	349	349	349	349	350	349	349	349	349	349	349	349	349			
20	334	334	334	334	334	335	335	335	335	335	335	335	335	335	334	335	334		
25	315	314	315	314	316	317	316	318	317	316	317	316	317	316	315	315			
30	293	290	293	290	294	290	294	291	290	294	291	294	290	294	290	293			
35	267	264	267	264	268	265	269	266	265	269	266	268	265	268	265	267			
40	237	234	236	234	237	235	238	236	235	238	236	238	235	237	235	237			
45	203	201	203	201	204	202	205	203	202	205	202	204	202	204	201	203			
50	167	166	167	166	168	168	169	168	168	169	168	169	167	168	167	167			
55	131	132	131	132	131	133	132	134	133	133	133	132	133	132	132	131			
60	97.2	98.0	97.1	98.0	97.3	98.9	98.4	99.6	99.7	99.1	99.8	98.7	99.2	98.0	98.4	97.5			
65	65.6	66.2	65.4	66.2	65.7	66.8	66.4	67.6	67.8	67.3	68.0	67.1	67.5	66.4	66.8	65.9			
70	39.6	40.0	39.4	40.0	39.6	40.3	40.0	40.9	41.1	40.7	41.3	40.7	41.0	40.2	40.5	39.8			
75	23.5	23.7	23.3	23.7	23.4	23.8	23.7	24.1	24.2	24.0	24.3	24.0	24.2	23.8	24.0	23.6			
80	15.2	15.3	15.2	15.4	15.3	15.4	15.3	15.5	15.7	15.6	15.7	15.6	15.7	15.5	15.6	15.4			
85	10.2	10.3	10.0	10.2	10.1	10.3	10.2	10.5	11.0	10.8	11.0	10.9	11.0	10.8	10.9	10.7			
90	4.90	4.89	4.90	4.90	4.91	4.88	4.90	4.92	5.37	5.37	5.37	5.37	5.38	5.37	5.36	5.37			
95	4.69	4.69	4.70	4.70	4.69	4.68	4.70	4.70	5.31	5.32	5.30	5.31	5.31	5.31	5.30	5.31			
100	4.63	4.63	4.63	4.63	4.63	4.63	4.63	4.63	5.34	5.35	5.34	5.34	5.34	5.35	5.34	5.35			
105	4.66	4.67	4.67	4.67	4.66	4.66	4.67	4.67	5.44	5.45	5.45	5.45	5.45	5.45	5.44	5.47			
110	4.78	4.78	4.78	4.78	4.79	4.78	4.78	4.78	5.61	5.61	5.61	5.61	5.62	5.62	5.62	5.63			
115	4.96	4.96	4.98	4.97	4.97	4.96	4.95	4.96	5.82	5.82	5.81	5.82	5.82	5.82	5.82	5.84			
120	5.21	5.21	5.21	5.20	5.21	5.19	5.22	5.19	6.03	6.05	6.03	6.04	6.05	6.06	6.06	6.06			
125	5.48	5.48	5.48	5.47	5.48	5.47	5.47	5.47	6.29	6.31	6.29	6.30	6.31	6.32	6.31	6.32			
130	5.77	5.77	5.78	5.77	5.78	5.76	5.77	5.76	6.55	6.56	6.56	6.56	6.56	6.57	6.57	6.58			
135	6.08	6.07	6.09	6.08	6.08	6.08	6.07	6.08	6.82	6.82	6.82	6.84	6.82	6.84	6.83	6.85			
140	6.41	6.41	6.41	6.41	6.42	6.40	6.41	6.40	7.09	7.10	7.10	7.11	7.10	7.11	7.11	7.13			
145	6.75	6.75	6.76	6.75	6.76	6.74	6.75	6.74	7.38	7.39	7.38	7.40	7.40	7.40	7.40	7.42			
150	7.11	7.10	7.12	7.11	7.12	7.11	7.12	7.10	7.68	7.69	7.67	7.69	7.69	7.71	7.69	7.70			
155	7.47	7.46	7.49	7.48	7.49	7.47	7.48	7.47	7.98	7.99	7.98	8.00	7.99	8.00	7.99	8.02			
160	7.83	7.82	7.84	7.83	7.84	7.82	7.84	7.82	8.28	8.29	8.27	8.29	8.29	8.30	8.29	8.31			
165	8.19	8.19	8.20	8.19	8.20	8.18	8.19	8.19	8.54	8.54	8.53	8.55	8.54	8.56	8.54	8.56			
170	8.52	8.51	8.53	8.52	8.53	8.52	8.52	8.52	8.76	8.75	8.74	8.76	8.75	8.76	8.75	8.77			
175	8.79	8.78	8.79	8.78	8.79	8.78	8.79	8.79	8.89	8.89	8.88	8.89	8.88	8.89	8.88	8.89			
180	8.93	8.94	8.93	8.93	8.93	8.93	8.93	8.93	8.94	8.93	8.93	8.93	8.94	8.93	8.92	8.93			

3. Product Photo



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