

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): DLR0068(R4R89FA120WS)

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

**Type of
Luminaire:** Downlights

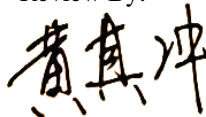
Report Date: 2019-09-30

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	700 lm
Declared CCT	2700K/3000K/3500K/4000K

Note: The tests are conducted under the worst conditions.

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	DLR0068(R4R89FA120WS)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250052	120.0	60	0.062	7.35	0.980

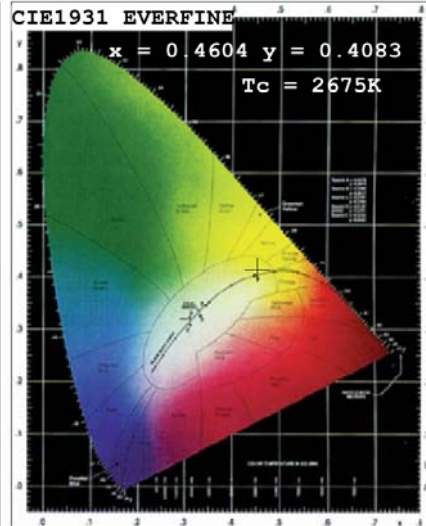
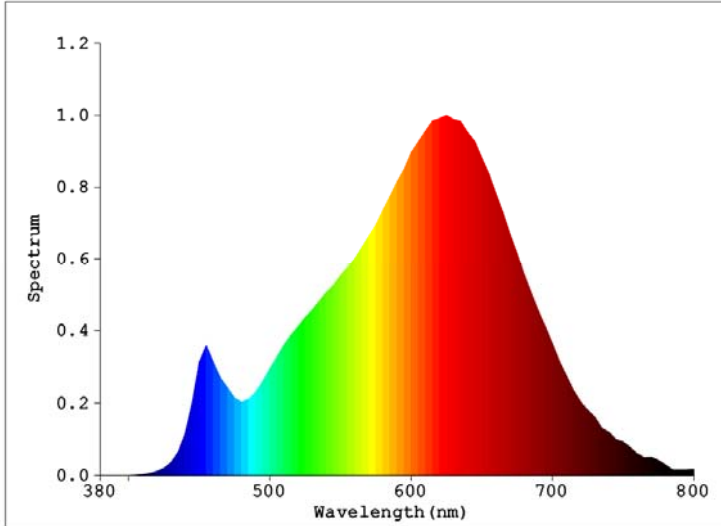
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	94	R9	61
Frequency (Hz)	60	R2	98	R10	94
CCT (K)	2675	R3	99	R11	94
Duv	0.00088	R4	93	R12	85
Chromaticity (x, y)	x=0.4604 y=0.4083	R5	94	R13	95
Chromaticity (u', v')	u'=0.2639 v'=0.5266	R6	97	R14	99
Color Rendering Index (CRI)	93.2	R7	91	R15	89
R9	61	R8	81	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	753.27
Luminous Efficacy (lm/W)	102.49
Beam Angle (°)	96.0
Center Beam Candle Power (cd)	318.9

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	241.3	32.0%
0-40	386.1	51.2%
0-60	627.7	83.3%
60-90	92.9	12.3%
70-100	38.4	5.1%
90-120	14.0	1.9%
0-90	720.6	95.7%
90-180	32.6	4.3%
0-180	753.3	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	30.1	4.0%	90-100	4.8	0.6%
10-20	85.2	11.3%	100-110	4.6	0.6%
20-30	126.0	16.7%	110-120	4.6	0.6%
30-40	144.8	19.2%	120-130	4.6	0.6%
40-50	136.6	18.1%	130-140	4.3	0.6%
50-60	105.0	13.9%	140-150	3.8	0.5%
60-70	59.3	7.9%	150-160	3.1	0.4%
70-80	23.7	3.1%	160-170	2.1	0.3%
80-90	9.9	1.3%	170-180	0.7	0.1%

Photometric Data

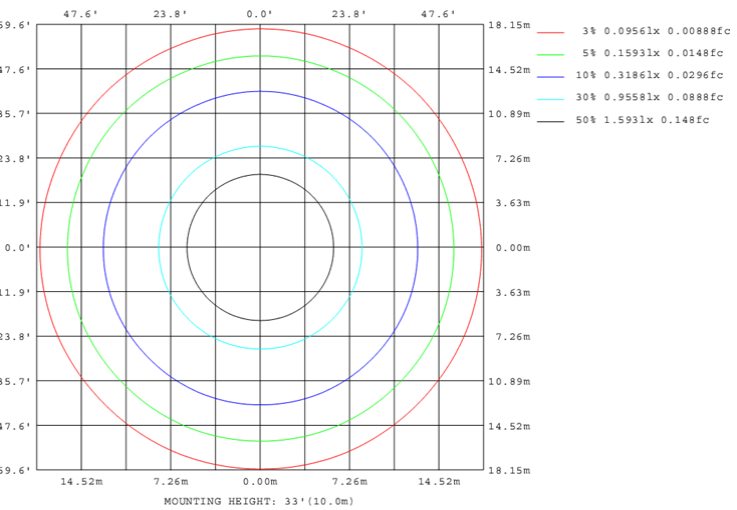
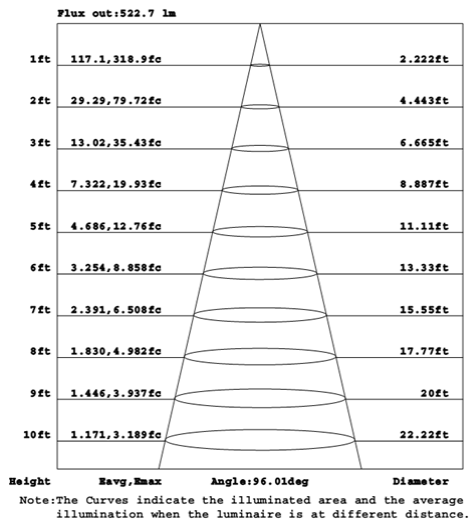
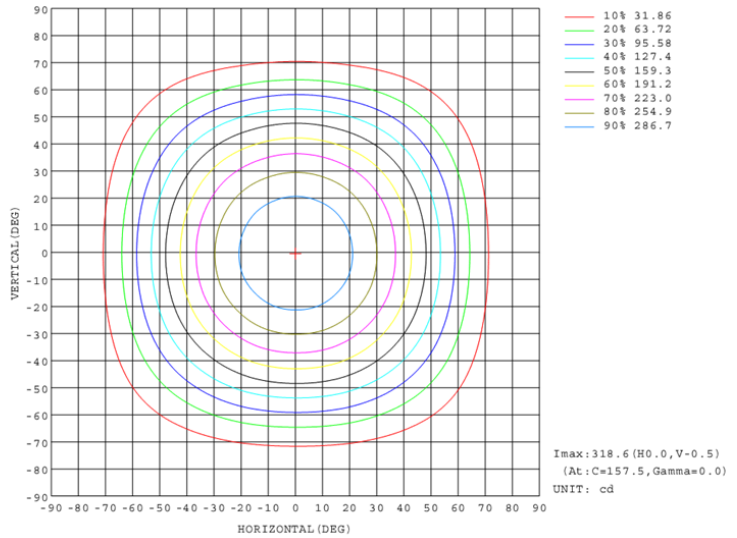
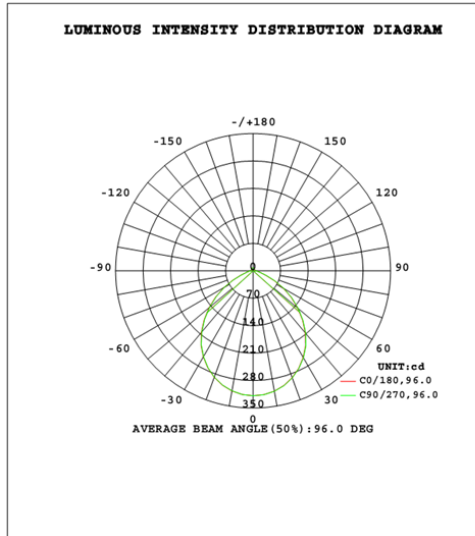
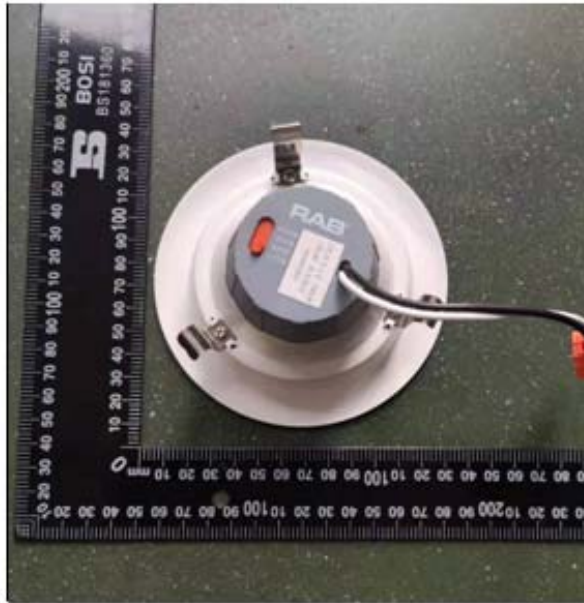


Table--1

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	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319	319			
5	317	317	317	317	317	317	317	317	317	316	317	317	317	317	317	317			
10	312	312	312	312	312	312	312	312	311	311	311	311	311	311	311				
15	303	303	303	304	303	303	303	303	302	301	302	301	302	302	302	302			
20	290	291	291	291	291	291	290	290	289	289	289	288	289	289	289	289			
25	274	275	275	276	275	275	274	274	273	272	272	272	272	272	273	274			
30	255	256	256	257	256	256	255	255	254	253	253	252	253	253	254	254			
35	233	235	234	235	234	234	233	233	231	230	230	230	230	230	232	232			
40	207	209	209	209	208	208	207	207	205	204	204	203	204	204	205	206			
45	178	180	180	181	180	180	178	178	176	175	175	174	175	175	176	177			
50	148	150	150	151	150	150	148	148	146	145	145	144	145	145	147	147			
55	118	121	120	121	120	120	118	118	116	115	115	114	115	115	117	117			
60	88.6	90.6	90.5	91.5	90.4	90.4	88.5	88.2	86.5	84.9	84.9	83.8	84.8	84.8	86.5	87.0			
65	59.6	61.5	61.4	62.4	61.4	61.5	59.7	59.3	57.9	56.2	56.3	55.4	56.3	56.2	57.8	58.3			
70	35.4	36.7	36.6	37.4	36.6	36.7	35.5	35.2	34.1	33.0	33.0	32.4	33.0	32.9	34.0	34.4			
75	21.1	21.7	21.7	22.1	21.7	21.8	21.1	20.9	20.4	19.8	19.8	19.5	19.8	19.7	20.3	20.6			
80	13.5	13.9	13.8	14.1	13.9	13.9	13.6	13.6	13.4	13.2	13.2	13.1	13.1	13.1	13.3	13.4			
85	9.22	9.57	9.54	9.74	9.54	9.57	9.23	9.16	9.21	8.89	8.91	8.72	8.89	8.86	9.18	9.28			
90	4.31	4.33	4.33	4.40	4.35	4.31	4.29	4.26	4.61	4.63	4.62	4.64	4.62	4.62	4.62	4.65			
95	4.10	4.10	4.10	4.10	4.09	4.07	4.08	4.07	4.58	4.60	4.59	4.59	4.58	4.58	4.58	4.59			
100	4.01	4.00	4.01	4.01	4.00	3.99	4.00	3.99	4.63	4.63	4.63	4.63	4.62	4.62	4.62	4.63			
105	4.03	4.02	4.02	4.02	4.01	4.01	4.01	4.01	4.72	4.73	4.73	4.73	4.73	4.72	4.71	4.72			
110	4.13	4.11	4.11	4.12	4.11	4.10	4.11	4.11	4.88	4.88	4.88	4.88	4.87	4.87	4.86	4.86			
115	4.28	4.27	4.26	4.26	4.26	4.25	4.26	4.27	5.06	5.06	5.06	5.07	5.05	5.05	5.04	5.04			
120	4.49	4.47	4.49	4.46	4.46	4.45	4.48	4.48	5.26	5.27	5.27	5.27	5.25	5.25	5.24	5.24			
125	4.71	4.70	4.70	4.69	4.69	4.69	4.69	4.71	5.48	5.49	5.49	5.50	5.49	5.48	5.47	5.47			
130	4.97	4.96	4.94	4.94	4.94	4.94	4.95	4.95	5.71	5.72	5.72	5.72	5.71	5.70	5.68	5.69			
135	5.23	5.22	5.21	5.22	5.21	5.20	5.21	5.22	5.95	5.95	5.95	5.96	5.94	5.94	5.93	5.92			
140	5.52	5.49	5.51	5.49	5.49	5.49	5.50	5.50	6.18	6.20	6.19	6.20	6.17	6.18	6.17	6.16			
145	5.81	5.79	5.79	5.78	5.79	5.79	5.79	5.79	6.43	6.45	6.44	6.45	6.43	6.43	6.42	6.42			
150	6.12	6.10	6.11	6.10	6.10	6.09	6.11	6.11	6.69	6.72	6.70	6.70	6.69	6.69	6.68	6.68			
155	6.45	6.43	6.44	6.42	6.42	6.42	6.42	6.43	6.96	6.98	6.96	6.97	6.96	6.96	6.94	6.94			
160	6.77	6.74	6.75	6.73	6.74	6.74	6.75	6.76	7.22	7.22	7.21	7.22	7.21	7.21	7.19	7.19			
165	7.10	7.07	7.07	7.06	7.06	7.05	7.08	7.07	7.43	7.45	7.44	7.43	7.43	7.42	7.41	7.41			
170	7.38	7.36	7.36	7.34	7.36	7.35	7.36	7.36	7.60	7.60	7.60	7.60	7.59	7.59	7.58	7.59			
175	7.62	7.60	7.60	7.58	7.59	7.59	7.60	7.59	7.71	7.71	7.70	7.70	7.69	7.69	7.68	7.69			
180	7.75	7.73	7.73	7.72	7.72	7.71	7.72	7.73	7.74	7.73	7.73	7.73	7.71	7.73	7.71	7.73			

3. Product Photo



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