

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): DLC0010(C8R24840UNVW)

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

**Type of
Luminaire:** Downlights

Report Date: 2019-10-10

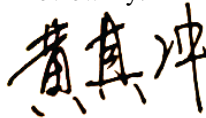
Prepared By:

Test & Report By:



Engineer: Sun Fangfang

Review By:



Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120V-277Vac, 50/60 Hz
Nominal Power	24W
Rated Initial Lamp Lumen	2300 lm
Declared CCT	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	2019-10-08	Test Ambient:	25.6 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	DLC0010(C8R24840UNVW)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1909180023	120.0	60	0.188	22.40	0.995

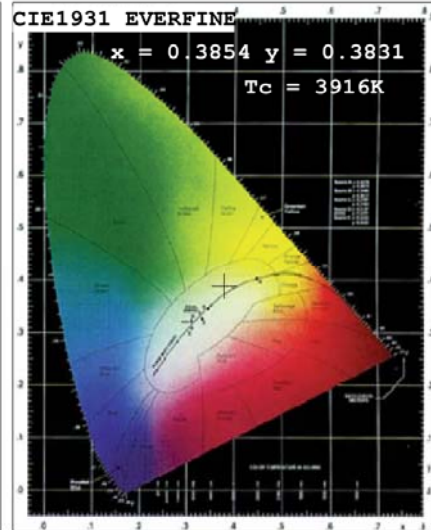
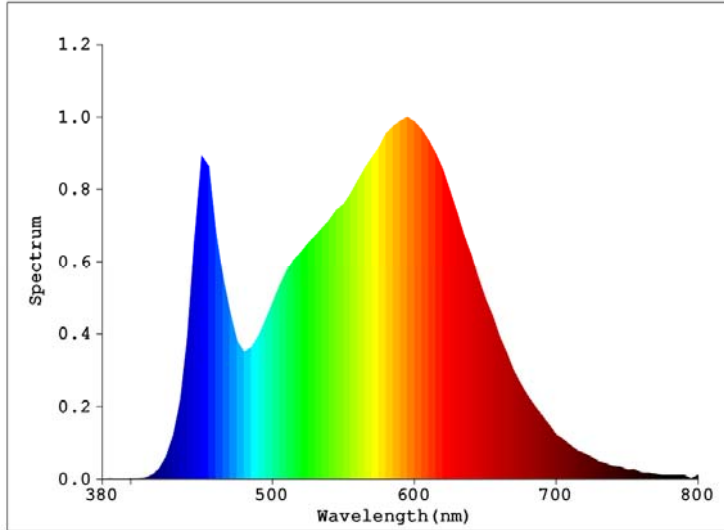
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	7
Frequency (Hz)	60	R2	91	R10	79
CCT (K)	3916	R3	96	R11	80
Duv	0.00153	R4	81	R12	65
Chromaticity (x, y)	x=0.3854 y=0.3831	R5	82	R13	84
Chromaticity (u', v')	u'=0.2258 v'=0.5051	R6	88	R14	98
Color Rendering Index (CRI)	83.4	R7	85	R15	75
R9	7	R8	63	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2511.2
Luminous Efficacy (lm/W)	112.11
Beam Angle (°)	89.5
Center Beam Candle Power (cd)	1202.0

Spectral Power Distribution & Chromaticity Diagram

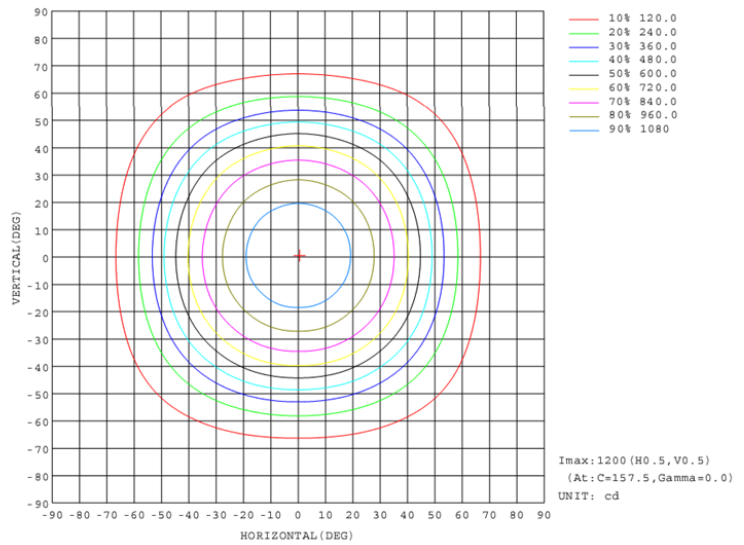
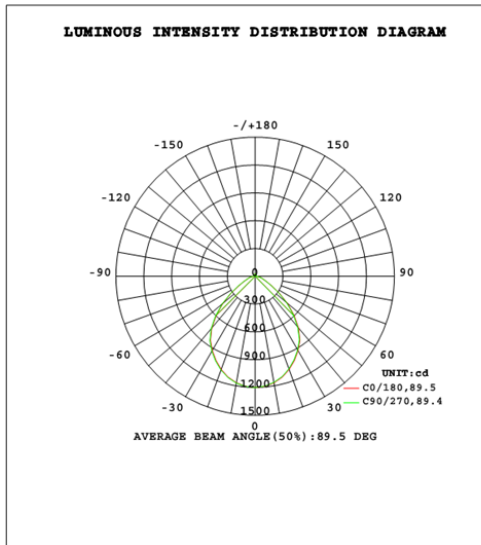


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	891.2	35.5%
0-40	1413.4	56.3%
0-60	2156.7	85.9%
60-90	245.0	9.8%
70-100	120.2	4.8%
90-120	45.4	1.8%
0-90	2401.6	95.6%
90-180	109.5	4.4%
0-180	2511.2	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	112.9	4.5%	90-100	15.1	0.6%
10-20	317.1	12.6%	100-110	15.0	0.6%
20-30	461.2	18.4%	110-120	15.3	0.6%
30-40	522.2	20.8%	120-130	15.4	0.6%
40-50	455.7	18.1%	130-140	14.9	0.6%
50-60	287.6	11.5%	140-150	13.3	0.5%
60-70	139.8	5.6%	150-160	10.8	0.4%
70-80	73.1	2.9%	160-170	7.2	0.3%
80-90	32.0	1.3%	170-180	2.6	0.1%

Photometric Data



Flux out: 1658 lm

Height	Havg, Rmax	Angle: 89.40deg	Diameter
1ft	527.7, 1202fc		1.979ft
2ft	131.9, 300.4fc		3.958ft
3ft	56.63, 133.5fc		5.938ft
4ft	32.98, 75.10fc		7.917ft
5ft	21.11, 48.06fc		9.896ft
6ft	14.66, 33.38fc		11.88ft
7ft	10.77, 24.52fc		13.85ft
8ft	8.245, 18.77fc		15.83ft
9ft	6.515, 14.83fc		17.81ft
10ft	5.277, 12.02fc		19.79ft

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

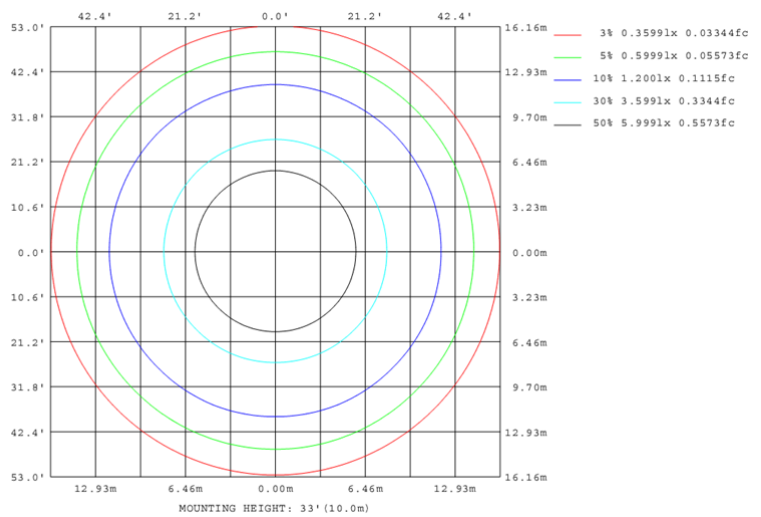
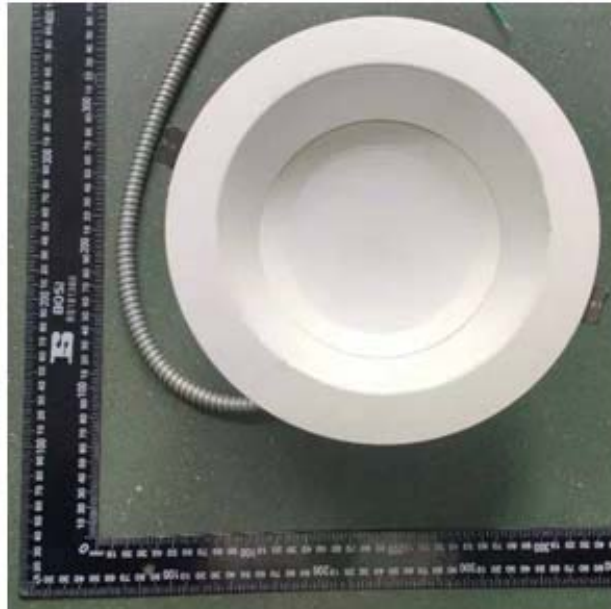
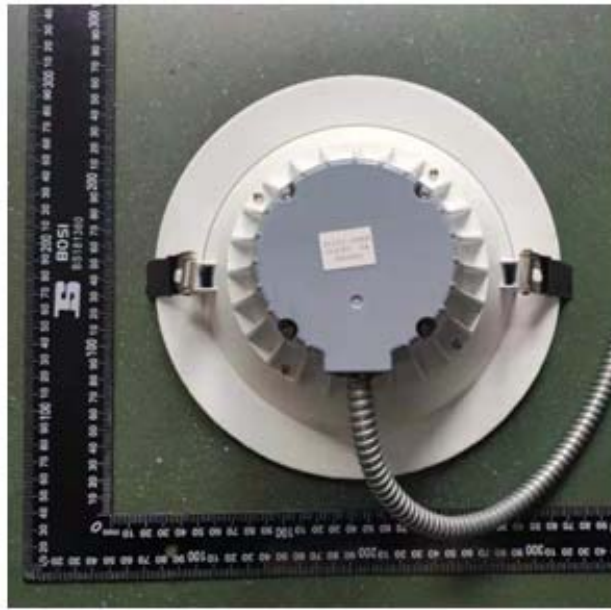


Table--1

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	1200	1199	1200	1199	1199	1200	1201	1202	1200	1199	1200	1199	1199	1200	1201	1202			
5	1191	1191	1190	1189	1189	1190	1190	1193	1191	1191	1193	1192	1193	1193	1194	1194			
10	1167	1166	1164	1163	1162	1164	1164	1167	1166	1167	1169	1168	1170	1170	1170	1170			
15	1126	1126	1125	1122	1120	1122	1123	1126	1126	1127	1129	1129	1131	1130	1132	1130			
20	1071	1069	1066	1065	1062	1065	1065	1069	1070	1071	1075	1074	1076	1075	1076	1074			
25	1002	1001	996	996	993	996	996	1001	1001	1002	1007	1006	1008	1007	1008	1005			
30	926	925	921	921	917	920	920	925	926	927	931	931	934	931	933	930			
35	842	841	836	836	832	835	835	841	842	842	848	847	850	848	849	846			
40	727	726	718	719	715	719	718	726	729	729	736	734	739	735	737	732			
45	592	591	583	585	580	585	583	591	594	595	602	600	605	600	603	597			
50	450	450	443	445	440	445	444	450	454	454	462	460	464	460	462	456			
55	316	313	309	308	308	309	310	312	316	319	322	324	325	323	322	320			
60	206	203	202	200	201	201	202	203	205	207	209	211	211	211	209	208			
65	134	134	132	133	131	133	132	134	135	135	137	136	138	137	137	135			
70	90.9	91.0	89.3	89.6	88.7	89.8	89.2	90.7	91.4	91.3	93.0	92.4	93.6	92.4	92.9	91.5			
75	68.8	68.9	68.2	68.3	67.5	68.1	67.9	68.7	69.3	69.2	70.1	69.8	70.2	69.7	70.0	69.4			
80	46.9	47.1	46.1	46.4	45.7	46.3	46.0	46.7	48.2	48.4	49.6	49.3	50.0	49.3	49.7	48.8			
85	26.5	26.7	26.2	26.4	25.8	26.4	25.8	26.2	28.3	28.5	29.9	29.8	30.3	29.8	29.9	28.9			
90	13.2	13.2	13.1	13.2	13.2	13.2	13.2	13.2	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0			
95	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.9			
100	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0			
105	12.8	12.8	12.8	12.8	12.9	12.9	12.9	12.8	15.4	15.4	15.3	15.4	15.3	15.4	15.4	15.4			
110	13.3	13.3	13.3	13.3	13.3	13.3	13.4	13.3	16.0	16.0	15.9	15.9	15.9	16.0	16.0	16.0			
115	13.9	13.9	14.0	14.0	14.0	14.0	14.0	14.0	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.8			
120	14.8	14.8	14.9	14.9	14.9	14.9	14.9	14.9	17.6	17.5	17.5	17.5	17.5	17.6	17.6	17.6			
125	15.8	15.8	15.9	15.9	15.9	15.9	15.9	15.9	18.5	18.5	18.4	18.5	18.4	18.5	18.5	18.6			
130	16.8	16.8	16.9	16.9	17.0	16.9	17.0	16.9	19.5	19.5	19.4	19.4	19.4	19.5	19.5	19.5			
135	17.9	17.9	18.0	18.0	18.0	18.0	18.1	18.0	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.5			
140	19.0	19.0	19.1	19.1	19.1	19.1	19.2	19.1	21.4	21.4	21.3	21.3	21.3	21.4	21.4	21.5			
145	20.1	20.1	20.2	20.2	20.2	20.2	20.3	20.2	22.3	22.3	22.2	22.3	22.2	22.3	22.3	22.4			
150	21.3	21.3	21.3	21.4	21.4	21.4	21.4	21.4	23.2	23.2	23.2	23.2	23.2	23.3	23.3	23.3			
155	22.5	22.5	22.6	22.5	22.6	22.6	22.6	22.6	24.2	24.2	24.2	24.2	24.2	24.3	24.3	24.4			
160	23.7	23.7	23.8	23.8	23.9	23.8	23.9	23.8	25.2	25.2	25.2	25.2	25.2	25.3	25.3	25.4			
165	25.0	25.0	25.0	25.0	25.1	25.0	25.1	25.1	26.2	26.1	26.1	26.1	26.1	26.2	26.2	26.3			
170	26.1	26.1	26.2	26.1	26.2	26.2	26.2	26.2	26.9	26.9	26.9	26.9	26.9	27.0	27.0	27.0			
175	27.0	27.0	27.0	27.0	27.0	27.0	27.1	27.1	27.4	27.4	27.4	27.4	27.4	27.4	27.5	27.5			
180	27.5	27.5	27.5	27.5	27.5	27.5	27.6	27.6	27.5	27.5	27.5	27.5	27.5	27.6	27.6	27.6			

3. Product Photo



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