

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): DLC0013(C8R33840UNVW)

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

**Type of
Luminaire:** Downlights

Report Date: 2019-10-10

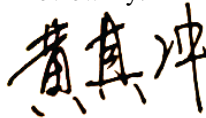
Prepared By:

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	33W
Rated Initial Lamp Lumen	3500 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	DLC0013(C8R33840UNVW)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1909180026	120.0	60	0.256	30.60	0.996

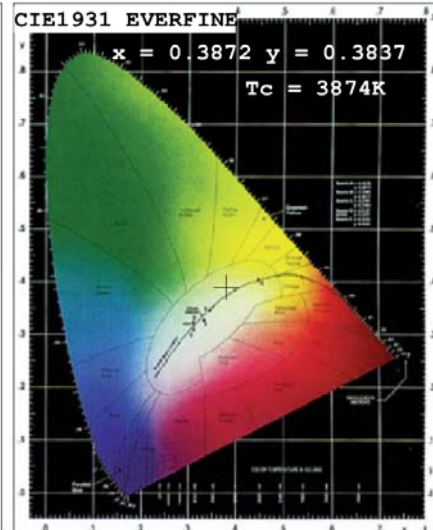
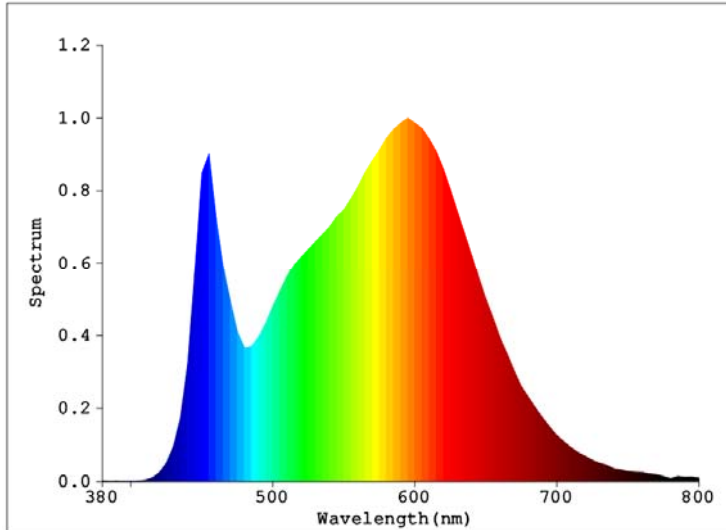
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	8
Frequency (Hz)	60	R2	92	R10	81
CCT (K)	3874	R3	96	R11	80
Duv	0.00129	R4	81	R12	65
Chromaticity (x, y)	x=0.3872 y=0.3837	R5	82	R13	85
Chromaticity (u', v')	u'=0.2268 v'=0.5056	R6	89	R14	98
Color Rendering Index (CRI)	83.7	R7	85	R15	75
R9	8	R8	63	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	3675.0
Luminous Efficacy (lm/W)	120.10
Beam Angle (°)	93.6
Center Beam Candle Power (cd)	1610.0

Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1195.2	32.5%
0-40	1893.3	51.5%
0-60	3056.7	83.2%
60-90	458.6	12.5%
70-100	185.4	5.0%
90-120	68.2	1.9%
0-90	3515.3	95.7%
90-180	159.7	4.3%
0-180	3675.0	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	151.6	4.1%	90-100	23.1	0.6%
10-20	425.6	11.6%	100-110	22.6	0.6%
20-30	618.1	16.8%	110-120	22.5	0.6%
30-40	698.1	19.0%	120-130	22.3	0.6%
40-50	658.6	17.9%	130-140	21.2	0.6%
50-60	504.8	13.7%	140-150	19.0	0.5%
60-70	296.3	8.1%	150-160	15.3	0.4%
70-80	118.5	3.2%	160-170	10.2	0.3%
80-90	43.8	1.2%	170-180	3.6	0.1%

Photometric Data

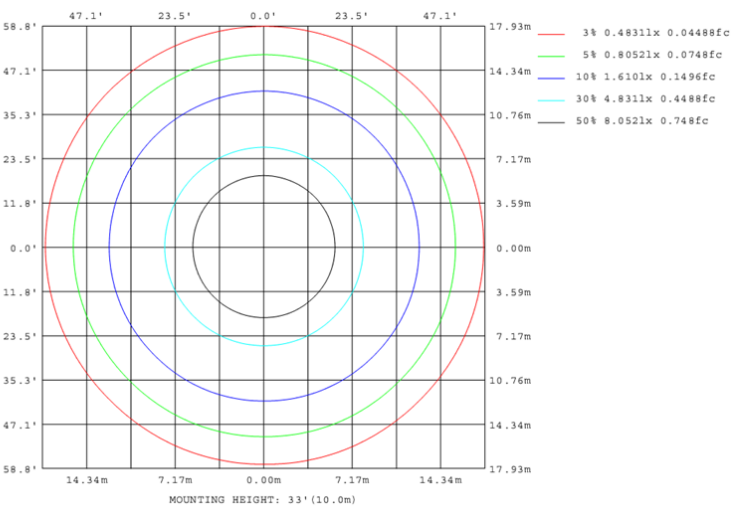
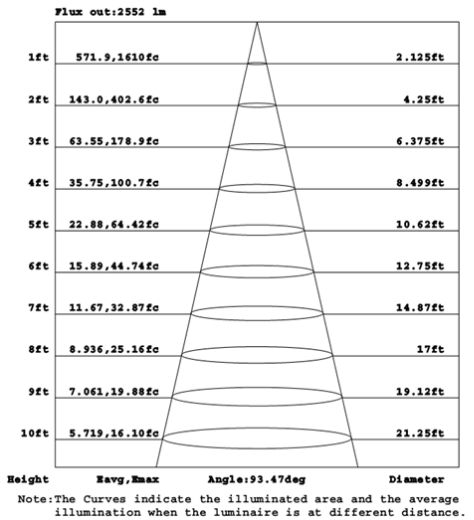
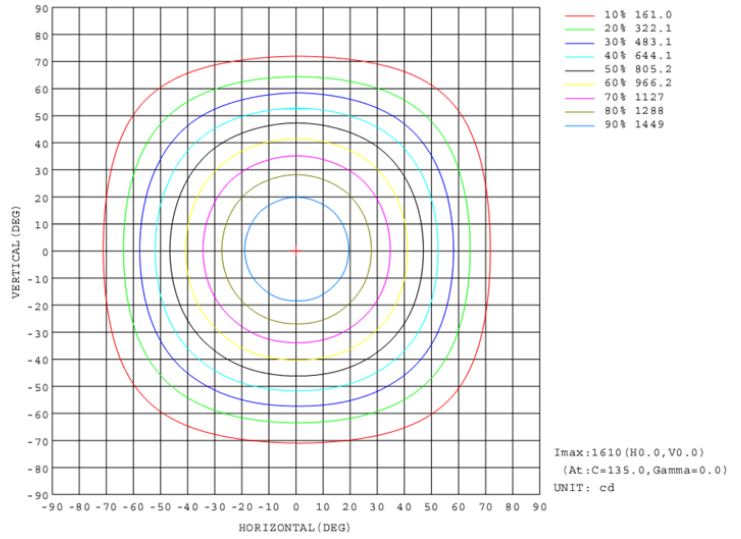
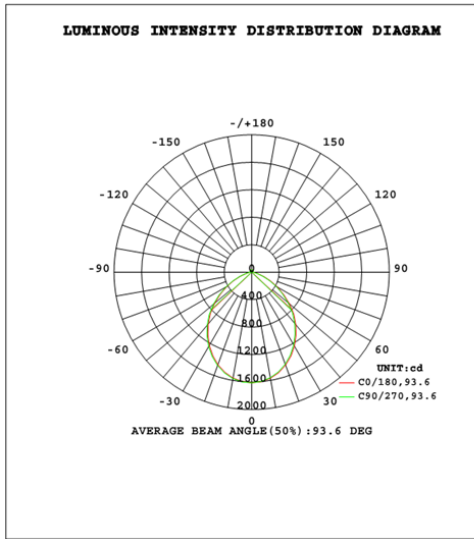
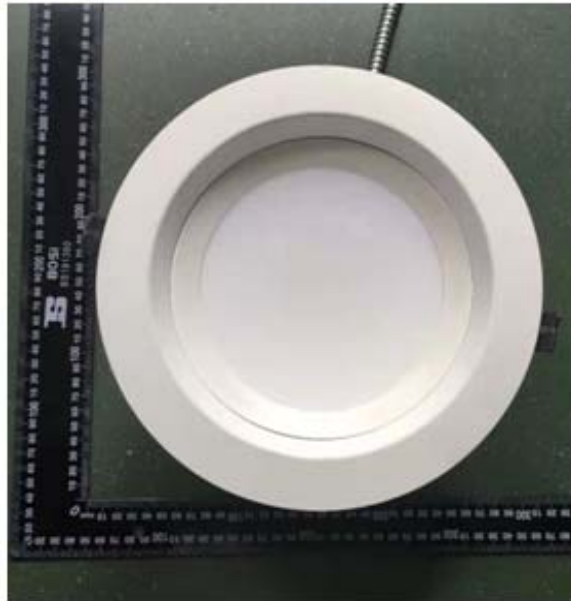


Table--1

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	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610
5	1600	1599	1597	1597	1596	1597	1596	1598	1598	1599	1601	1600	1602	1602	1602	1601
10	1568	1567	1563	1562	1559	1561	1559	1562	1564	1565	1568	1570	1572	1571	1572	1570
15	1515	1513	1508	1507	1502	1504	1503	1507	1508	1510	1516	1517	1520	1519	1520	1518
20	1441	1439	1432	1431	1425	1426	1425	1430	1433	1435	1442	1443	1448	1446	1448	1444
25	1348	1347	1339	1337	1330	1331	1329	1336	1339	1342	1350	1351	1356	1354	1357	1352
30	1241	1239	1230	1229	1220	1222	1220	1227	1232	1235	1243	1245	1250	1248	1250	1245
35	1122	1120	1111	1109	1100	1102	1100	1108	1112	1115	1124	1125	1131	1129	1132	1127
40	997	995	985	983	974	976	974	981	985	989	998	1000	1006	1003	1006	1001
45	865	863	850	848	840	843	839	846	851	854	864	866	873	871	874	868
50	716	714	703	701	692	694	691	698	703	705	716	717	726	723	727	721
55	570	568	557	555	547	549	545	552	557	559	569	570	578	576	580	574
60	431	429	419	418	409	411	407	414	419	420	430	431	439	436	441	435
65	303	297	293	287	284	281	282	283	288	293	297	302	305	308	307	307
70	191	187	183	179	176	174	174	175	179	184	187	190	193	195	195	194
75	106	105	101	100	96.9	97.5	95.6	97.8	101	101	105	106	109	109	111	109
80	59.0	58.8	56.6	56.4	55.1	55.3	54.3	55.3	57.0	57.3	59.1	59.5	61.7	61.4	62.2	61.0
85	40.4	40.2	39.0	39.1	37.8	38.0	37.4	37.8	40.1	40.3	41.9	42.5	43.5	43.3	43.9	43.0
90	20.8	20.7	20.6	20.6	20.5	20.5	20.5	20.6	22.6	22.7	22.7	22.7	22.9	22.8	23.1	22.8
95	19.8	19.8	19.7	19.7	19.7	19.7	19.7	19.7	22.4	22.4	22.4	22.4	22.4	22.5	22.5	22.5
100	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	22.6	22.6	22.6	22.6	22.5	22.6	22.6	22.6
105	19.5	19.5	19.5	19.5	19.5	19.5	19.6	19.5	23.0	23.0	23.0	23.0	22.9	23.0	23.0	23.0
110	19.9	19.9	20.0	20.0	20.0	20.0	20.1	20.0	23.7	23.7	23.6	23.7	23.6	23.6	23.6	23.7
115	20.7	20.7	20.7	20.8	20.8	20.8	20.9	20.8	24.6	24.6	24.5	24.5	24.5	24.5	24.5	24.6
120	21.7	21.7	21.8	21.8	21.9	21.9	21.9	21.9	25.6	25.6	25.5	25.5	25.5	25.5	25.5	25.6
125	22.9	22.9	23.0	23.0	23.1	23.1	23.1	23.1	26.8	26.7	26.6	26.6	26.6	26.6	26.6	26.7
130	24.1	24.1	24.2	24.3	24.4	24.4	24.5	24.4	27.9	27.9	27.8	27.8	27.7	27.8	27.8	27.9
135	25.5	25.5	25.6	25.7	25.8	25.8	25.9	25.8	29.2	29.1	29.0	29.1	29.0	29.0	29.0	29.1
140	27.0	27.0	27.1	27.2	27.3	27.3	27.4	27.3	30.4	30.4	30.3	30.3	30.3	30.3	30.3	30.4
145	28.5	28.5	28.7	28.7	28.9	28.8	28.9	28.9	31.8	31.7	31.6	31.6	31.6	31.6	31.6	31.7
150	30.2	30.2	30.3	30.3	30.5	30.5	30.5	30.5	33.1	33.1	33.0	33.0	32.9	33.0	33.0	33.1
155	31.8	31.9	32.0	32.0	32.1	32.1	32.2	32.2	34.4	34.4	34.3	34.3	34.2	34.3	34.3	34.4
160	33.5	33.5	33.6	33.7	33.8	33.8	33.8	33.8	35.7	35.6	35.5	35.5	35.5	35.6	35.6	35.6
165	35.1	35.1	35.2	35.2	35.3	35.3	35.4	35.4	36.7	36.7	36.6	36.6	36.6	36.6	36.6	36.7
170	36.6	36.6	36.6	36.6	36.7	36.7	36.8	36.7	37.6	37.6	37.5	37.5	37.5	37.5	37.5	37.6
175	37.7	37.6	37.7	37.7	37.7	37.7	37.8	37.8	38.2	38.2	38.1	38.1	38.1	38.1	38.2	38.2
180	38.3	38.3	38.3	38.2	38.3	38.3	38.4	38.4	38.3	38.3	38.2	38.3	38.3	38.3	38.3	38.4

3. Product Photo



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