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): DLC0017(C6R18930UNVW)

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:

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Review By:

Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120V-277Vac, 50/60 Hz
Nominal Power	18W
Rated Initial Lamp Lumen	1500 lm
Declared CCT	3000K

Note: The tests are conducted under the worst conditions.

1.2 Test Specifications:

Test item	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	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

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°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.

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 25ºC ±1ºC. 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 sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25ºC ±1ºC. 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.

2.1 Electrical, Photometric and Chromaticity Measurements

Test date	2019-10-08	**Test Ambient:**	25.6 ºC
Test Orientation	As intended	**Stabilization Time (min)**	90
Model Number	DLC0017(C6R18930UNVW)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1909180030	120.0	60	0.140	16.80	0.997

Chromaticity Measurement - Sphere-Spectroradiometer Method:

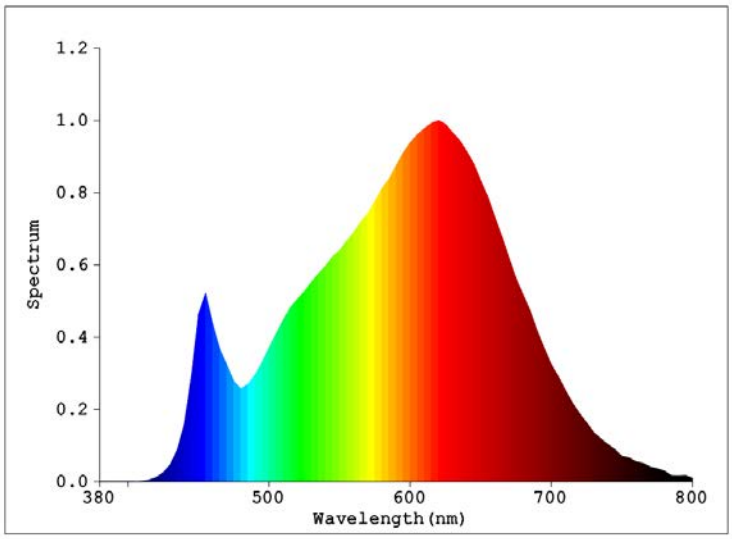
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3015
Duv	0.00005
Chromaticity (x, y)	x=0.4358 y=0.4036
Chromaticity (u', v')	u'=0.2501 v'=0.5210
Color Rendering Index (CRI)	92.5
R9	58

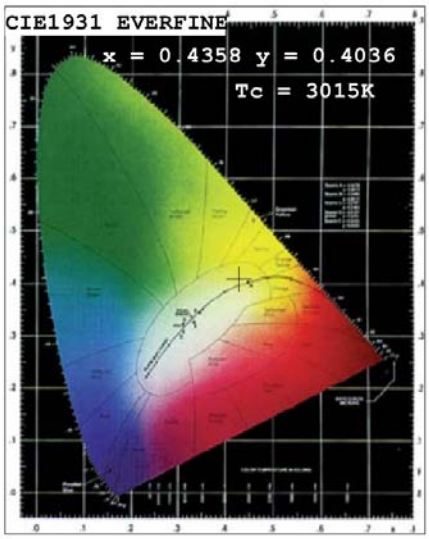
Special Color Rendering Indices			
R1	93	R9	58
R2	97	R10	92
R3	99	R11	92
R4	92	R12	79
R5	92	R13	94
R6	96	R14	99
R7	91	R15	88
R8	81	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1510.2
Luminous Efficacy (lm/W)	89.89
Beam Angle (°)	87.2
Center Beam Candle Power (cd)	723.0

Spectral Power Distribution & Chromaticity Diagram





Zonal Lumen Tabulation

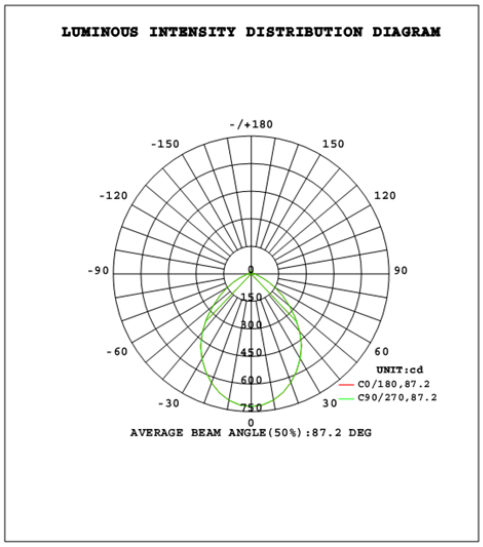
Zonal Lumen Summary

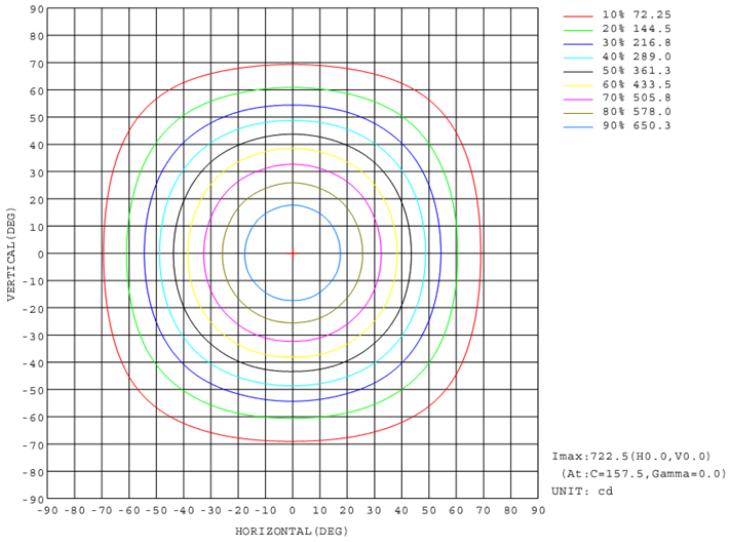
Zone	Lumens	% Luminaire
0-30	525.5	34.8%
0-40	823.0	54.5%
0-60	1274.2	84.4%
60-90	170.3	11.3%
70-100	74.5	4.9%
90-120	27.7	1.8%
0-90	1444.5	95.7%
90-180	65.7	4.3%
0-180	1510.2	100.0%

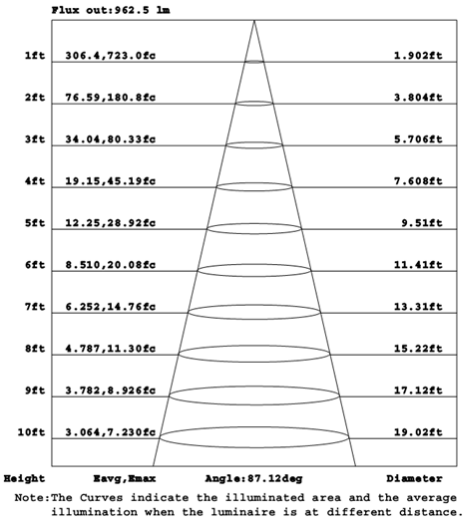
Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	67.8	4.5%	90-100	9.3	0.6%
10-20	188.4	12.5%	100-110	9.2	0.6%
20-30	269.2	17.8%	110-120	9.2	0.6%
30-40	297.5	19.7%	120-130	9.2	0.6%
40-50	263.4	17.4%	130-140	8.8	0.6%
50-60	187.8	12.4%	140-150	7.9	0.5%
60-70	105.1	7.0%	150-160	6.4	0.4%
70-80	45.6	3.0%	160-170	4.2	0.3%
80-90	19.5	1.3%	170-180	1.5	0.1%

Photometric Data







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

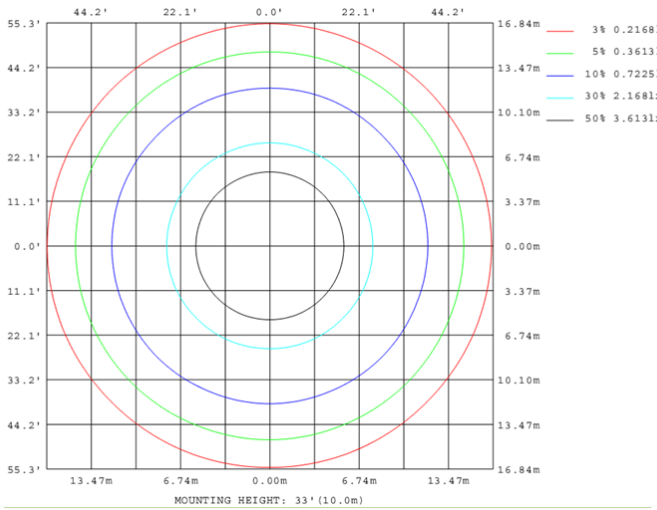
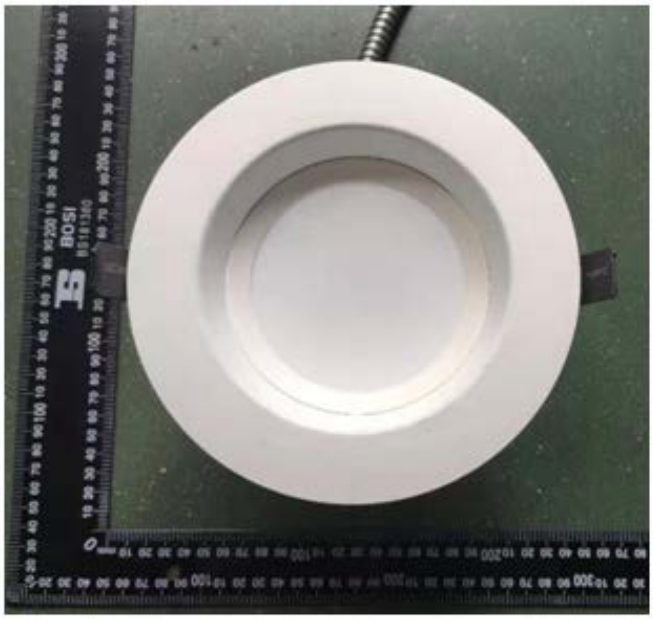


Table--1

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	723	723	722	722	722	723	723	723	723	723	722	722	722	723	723	723			
5	716	717	716	716	716	717	717	717	717	716	717	716	717	716	716	717			
10	698	699	698	699	698	699	698	700	699	699	699	698	699	698	699	699			
15	669	670	669	670	668	670	670	671	671	669	671	670	671	670	670	669			
20	631	632	630	631	630	631	631	633	631	631	632	631	632	631	632	631			
25	585	586	584	585	584	585	585	587	586	585	586	585	587	585	586	585			
30	533	534	532	533	532	534	534	536	535	534	535	534	535	534	534	533			
35	477	478	476	478	476	479	478	481	479	478	480	478	480	478	479	477			
40	411	412	409	411	409	412	412	415	413	412	414	412	414	411	412	410			
45	340	342	339	341	339	343	342	345	344	342	344	342	343	341	342	339			
50	272	269	271	269	271	270	274	273	272	274	272	274	271	273	270	271			
55	209	207	208	207	209	208	211	211	210	211	209	211	209	210	207	208			
60	150	151	149	151	150	152	152	154	154	152	153	152	153	151	151	149			
65	102	103	102	103	103	104	104	106	106	105	106	104	105	103	104	102			
70	64.6	65.3	64.4	65.5	65.0	66.4	66.4	67.9	67.7	66.7	67.5	66.5	67.1	65.9	65.9	64.7			
75	38.5	39.0	38.4	39.2	38.8	39.7	39.7	40.6	40.6	40.1	40.6	39.9	40.3	39.5	39.6	38.7			
80	27.2	27.5	27.3	27.6	27.5	27.8	27.8	28.1	28.2	28.0	28.1	27.8	27.9	27.6	27.6	27.4			
85	16.7	17.0	16.7	17.1	16.9	17.4	17.3	17.8	18.4	18.2	18.4	18.1	18.3	17.8	17.9	17.5			
90	8.25	8.27	8.26	8.29	8.30	8.30	8.31	8.33	9.16	9.14	9.16	9.15	9.15	9.14	9.12	9.12			
95	7.91	7.91	7.93	7.93	7.94	7.95	7.95	7.95	9.03	9.04	9.04	9.05	9.04	9.05	9.04	9.03			
100	7.81	7.82	7.83	7.83	7.84	7.84	7.86	7.85	9.11	9.12	9.10	9.11	9.11	9.12	9.11	9.12			
105	7.91	7.90	7.92	7.92	7.94	7.94	7.93	7.92	9.32	9.33	9.31	9.32	9.31	9.34	9.33	9.34			
110	8.14	8.13	8.16	8.15	8.17	8.16	8.17	8.15	9.64	9.65	9.63	9.65	9.63	9.66	9.64	9.67			
115	8.49	8.48	8.51	8.50	8.54	8.52	8.53	8.50	10.0	10.1	10.0	10.0	10.0	10.1	10.0	10.1			
120	8.95	8.94	8.98	8.95	8.99	8.97	8.99	8.97	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5			
125	9.49	9.48	9.52	9.50	9.53	9.51	9.53	9.50	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.1			
130	10.1	10.0	10.1	10.1	10.1	10.1	10.1	10.1	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.6			
135	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	12.1	12.1	12.0	12.1	12.1	12.1	12.1	12.1			
140	11.3	11.3	11.3	11.3	11.4	11.3	11.4	11.3	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.7			
145	12.0	11.9	12.0	12.0	12.0	12.0	12.0	12.0	13.1	13.2	13.1	13.1	13.1	13.2	13.2	13.2			
150	12.6	12.6	12.7	12.7	12.7	12.7	12.7	12.6	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.8			
155	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	14.2	14.2	14.2	14.2	14.2	14.3	14.3	14.3			
160	14.0	13.9	14.0	13.9	14.0	14.0	14.0	14.0	14.7	14.8	14.7	14.8	14.8	14.8	14.8	14.8			
165	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.3			
170	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.7			
175	15.7	15.7	15.7	15.6	15.7	15.7	15.7	15.7	15.8	15.8	15.8	15.8	15.8	15.9	15.9	15.9			
180	15.9	15.9	15.9	15.9	15.9	15.9	15.9	16.0	15.9	15.9	15.9	15.9	15.9	15.9	15.9	16.0			

3. Product Photo



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