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): DLC0009(C8R24835UNVW)

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	24W
Rated Initial Lamp Lumen	2300 lm
Declared CCT	3500K

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	DLC0009(C8R24835UNVW)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1909180022	120.0	60	0.188	22.50	0.994

Chromaticity Measurement - Sphere-Spectroradiometer Method:

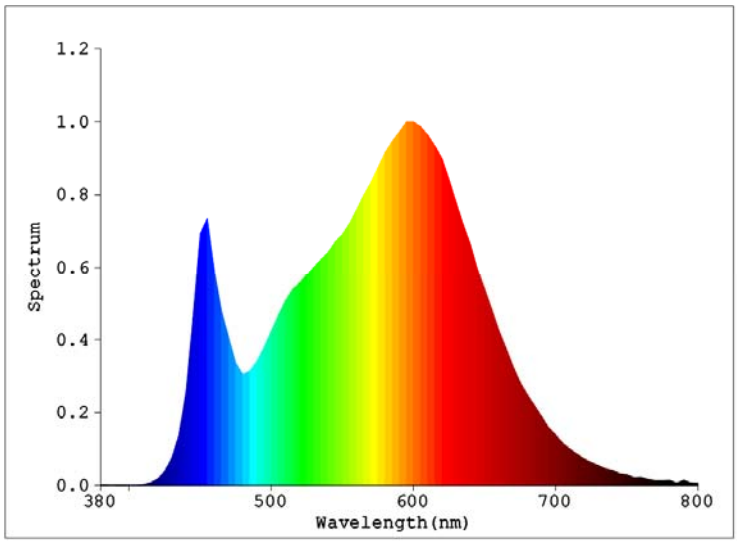
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3506
Duv	0.00072
Chromaticity (x, y)	x=0.4057 y=0.3926
Chromaticity (u', v')	u'=0.2352 v'=0.5121
Color Rendering Index (CRI)	84.1
R9	11

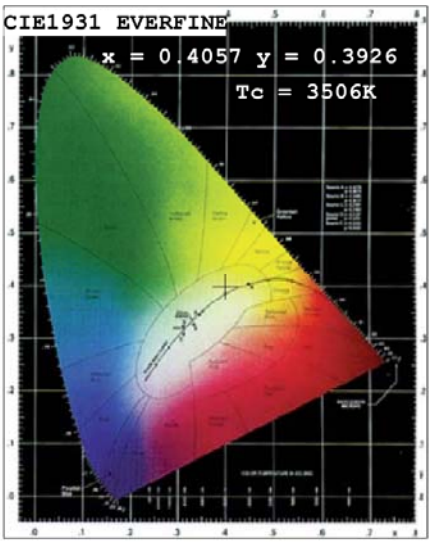
Special Color Rendering Indices			
R1	83	R9	11
R2	93	R10	82
R3	96	R11	81
R4	82	R12	69
R5	83	R13	86
R6	90	R14	98
R7	84	R15	76
R8	62	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	2347.7
Luminous Efficacy (lm/W)	104.34
Beam Angle (°)	90.0
Center Beam Candle Power (cd)	1111.0

Spectral Power Distribution & Chromaticity Diagram



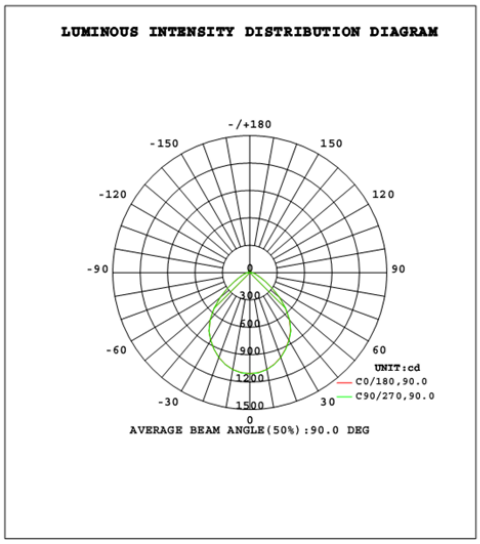


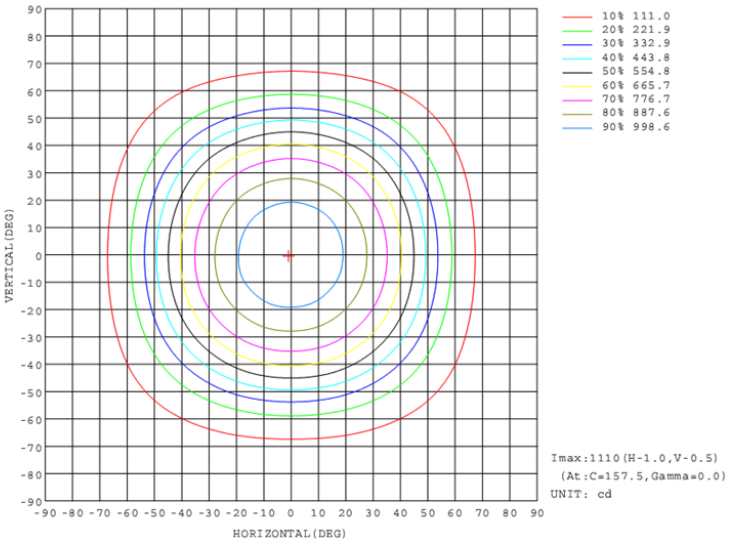
Zonal Lumen Tabulation

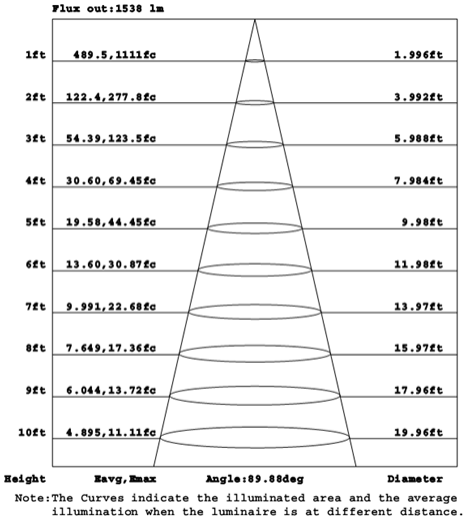
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	824.9	35.1%
0-40	1309.8	55.8%
0-60	2008.7	85.6%
60-90	236.9	10.1%
70-100	116.8	5.0%
90-120	42.8	1.8%
0-90	2245.6	95.7%
90-180	102.1	4.3%
0-180	2347.7	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	104.4	4.4%	90-100	14.3	0.6%
10-20	293.3	12.5%	100-110	14.2	0.6%
20-30	427.2	18.2%	110-120	14.4	0.6%
30-40	484.9	20.7%	120-130	14.4	0.6%
40-50	426.2	18.2%	130-140	13.8	0.6%
50-60	272.7	11.6%	140-150	12.3	0.5%
60-70	134.4	5.7%	150-160	9.9	0.4%
70-80	71.0	3.0%	160-170	6.6	0.3%
80-90	31.5	1.3%	170-180	2.4	0.1%

Photometric Data







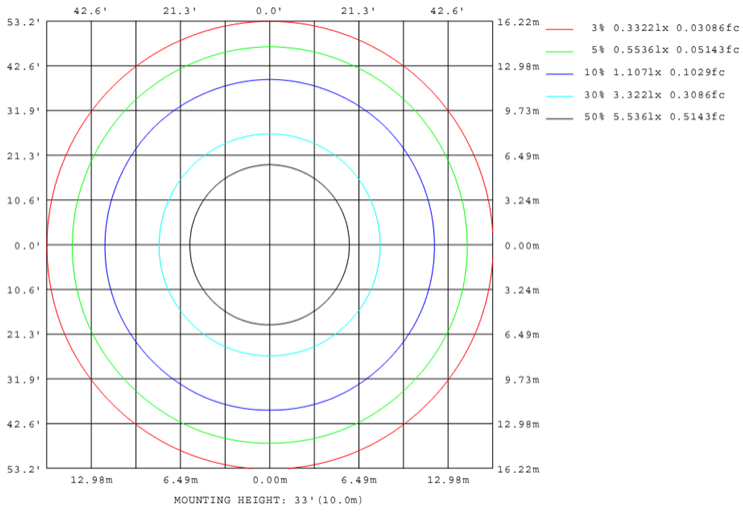
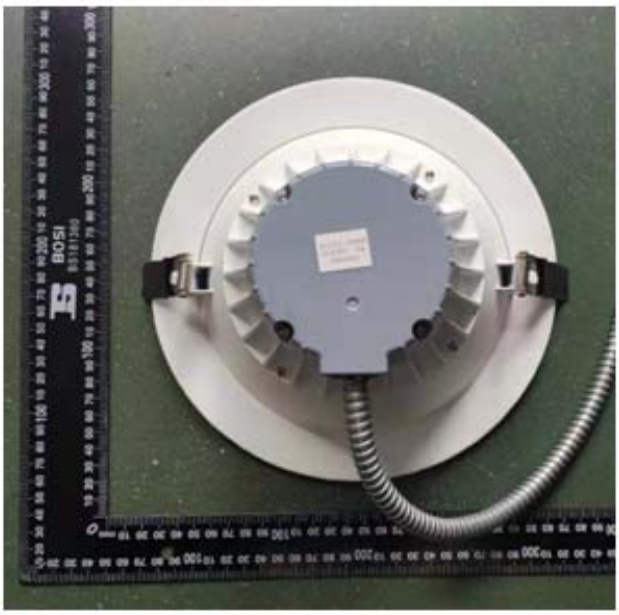


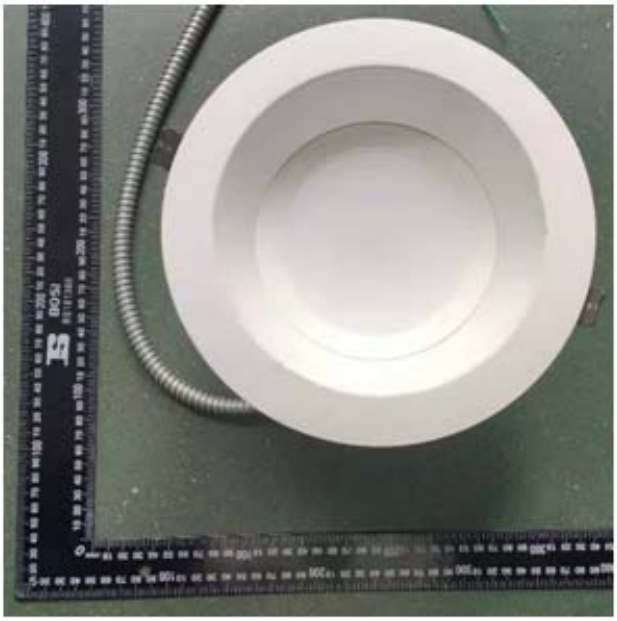
Table--1

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	1107	1108	1108	1109	1109	1110	1110	1111	1107	1108	1108	1109	1109	1110	1110	1111			
5	1099	1100	1100	1101	1101	1103	1104	1104	1100	1100	1101	1101	1102	1102	1103	1103			
10	1076	1077	1077	1078	1078	1081	1081	1083	1079	1078	1079	1078	1079	1079	1080	1079			
15	1039	1040	1040	1042	1041	1044	1044	1046	1042	1041	1042	1041	1042	1042	1043	1041			
20	988	989	989	991	990	993	993	996	991	989	991	989	991	990	991	989			
25	925	927	926	928	927	931	930	933	927	926	928	926	928	926	928	926			
30	856	858	857	860	859	862	861	864	858	856	858	856	858	856	858	856			
35	779	782	781	784	782	785	784	787	781	779	781	778	781	778	781	778			
40	675	680	678	682	679	683	680	684	677	673	676	673	677	674	677	674			
45	553	558	556	560	556	560	556	560	554	549	553	550	553	550	554	551			
50	425	430	427	431	427	431	427	430	425	420	424	421	425	422	425	422			
55	300	305	302	305	303	305	302	304	299	296	298	296	299	297	300	298			
60	198	198	199	199	199	198	198	197	193	193	192	193	193	195	194	195			
65	130	132	131	132	131	132	130	131	128	127	128	127	128	128	129	128			
70	88.9	90.2	89.4	90.4	89.4	90.2	89.0	89.7	88.0	86.6	87.3	86.5	87.6	87.1	88.2	87.6			
75	67.1	67.6	67.2	67.6	67.0	67.3	66.9	67.3	66.4	65.9	66.2	65.9	66.3	66.2	66.8	66.7			
80	46.4	47.2	46.5	47.3	46.6	47.2	46.6	47.2	47.3	46.5	47.0	46.5	47.0	46.6	47.2	46.8			
85	26.9	27.5	27.1	27.6	27.2	27.6	27.2	27.7	28.6	28.0	28.4	27.9	28.3	27.9	28.4	28.0			
90	12.6	12.6	12.6	12.6	12.6	12.6	12.7	12.6	14.1	14.1	14.0	14.1	14.1	14.1	14.1	14.1			
95	12.1	12.1	12.1	12.1	12.1	12.1	12.2	12.1	13.9	13.9	13.9	13.9	13.9	14.0	14.0	14.0			
100	12.0	12.0	12.0	12.0	12.0	12.1	12.1	12.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1			
105	12.2	12.2	12.2	12.2	12.2	12.3	12.3	12.3	14.5	14.5	14.4	14.5	14.4	14.5	14.5	14.5			
110	12.6	12.6	12.6	12.6	12.7	12.7	12.7	12.7	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0			
115	13.2	13.2	13.2	13.2	13.2	13.2	13.3	13.3	15.7	15.7	15.6	15.7	15.6	15.7	15.7	15.7			
120	13.9	13.9	13.9	13.9	14.0	14.0	14.0	14.0	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4			
125	14.8	14.8	14.8	14.8	14.8	14.8	14.9	14.9	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.3			
130	15.7	15.7	15.7	15.7	15.8	15.7	15.8	15.8	18.0	18.1	18.0	18.1	18.0	18.1	18.1	18.1			
135	16.6	16.6	16.7	16.6	16.7	16.7	16.7	16.7	18.8	18.9	18.8	18.9	18.8	18.9	18.9	18.9			
140	17.6	17.6	17.6	17.6	17.7	17.6	17.7	17.7	19.7	19.7	19.6	19.7	19.7	19.7	19.7	19.7			
145	18.6	18.6	18.6	18.6	18.7	18.6	18.7	18.7	20.5	20.5	20.4	20.5	20.5	20.5	20.5	20.5			
150	19.7	19.6	19.7	19.6	19.7	19.7	19.7	19.7	21.3	21.3	21.3	21.3	21.3	21.4	21.4	21.4			
155	20.7	20.6	20.7	20.7	20.7	20.7	20.8	20.8	22.2	22.2	22.2	22.2	22.2	22.3	22.3	22.3			
160	21.8	21.7	21.8	21.7	21.8	21.8	21.9	21.8	23.1	23.1	23.1	23.1	23.1	23.2	23.2	23.2			
165	22.9	22.8	22.9	22.8	22.9	22.9	23.0	23.0	23.9	24.0	23.9	24.0	23.9	24.0	24.0	24.1			
170	23.9	23.8	23.9	23.8	23.9	23.9	24.0	24.0	24.6	24.6	24.6	24.7	24.6	24.7	24.7	24.8			
175	24.7	24.7	24.7	24.7	24.7	24.7	24.8	24.8	25.1	25.0	25.0	25.1	25.1	25.1	25.1	25.2			
180	25.2	25.1	25.2	25.2	25.2	25.2	25.3	25.3	25.2	25.1	25.1	25.2	25.2	25.2	25.3	25.3			

3. Product Photo





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