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): DLR0047(R6R11840120WS)

Report Type:	Testing and Report According to IES LM-79-2008
Type of Luminaire:	Downlights
Report Date:	2019-09-30

Prepared By:

Test & Report By:

Engineer: Sun Fangfang

Review By:

Manager: Huang Qichong

1.1 Rated Values:	
Rated Voltage / Frequency	120Vac, 50/60 Hz
Nominal Power	10.5W
Rated Initial Lamp Lumen	1050 lm
Declared CCT	4000K

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	2019-09-28	**Test Ambient:**	25.5 ºC
Test Orientation	As intended	**Stabilization Time (min)**	90
Model Number	DLR0047(R6R11840120WS)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250031	120.0	60	0.084	9.97	0.983

Chromaticity Measurement - Sphere-Spectroradiometer Method:

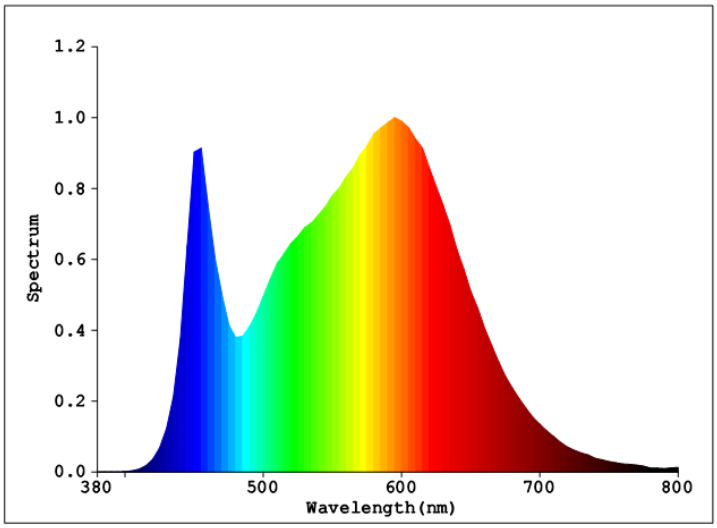
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3975
Duv	0.00128
Chromaticity (x, y)	x=0.3825 y=0.3808
Chromaticity (u', v')	u'=0.2249 v'=0.5036
Color Rendering Index (CRI)	84.3
R9	12

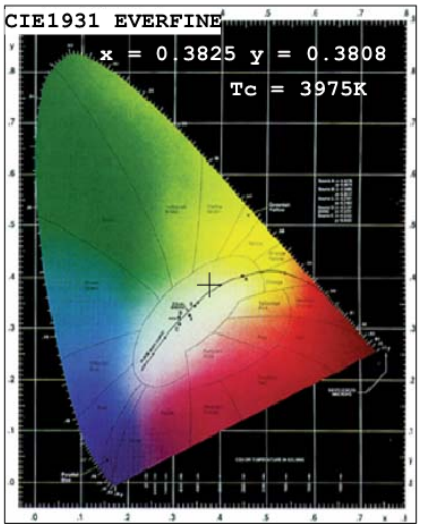
Special Color Rendering Indices			
R1	83	R9	12
R2	92	R10	81
R3	96	R11	81
R4	82	R12	66
R5	83	R13	85
R6	89	R14	98
R7	86	R15	76
R8	65	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1143.9
Luminous Efficacy (lm/W)	114.74
Beam Angle (°)	97.9
Center Beam Candle Power (cd)	478.4

Spectral Power Distribution & Chromaticity Diagram





Zonal Lumen Tabulation

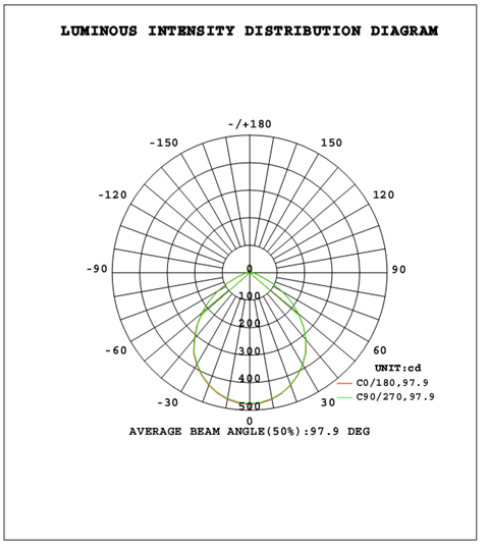
Zonal Lumen Summary

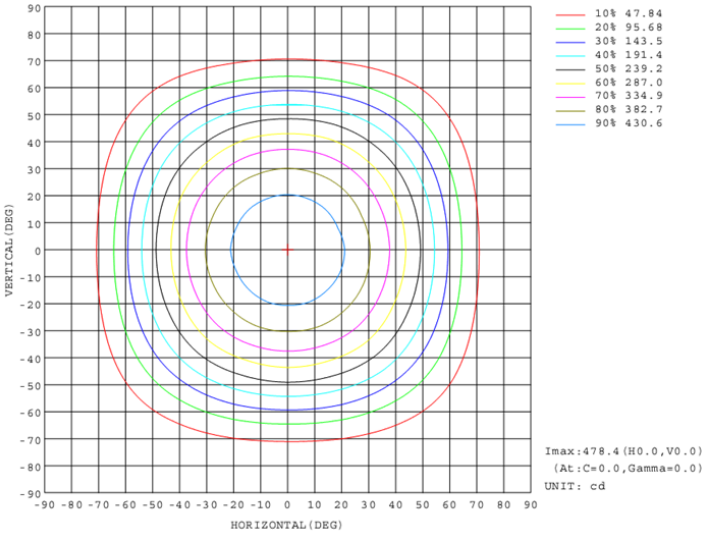
Zone	Lumens	% Luminaire
0-30	361.3	31.6%
0-40	581.4	50.8%
0-60	954.5	83.4%
60-90	139.6	12.2%
70-100	56.2	4.9%
90-120	21.4	1.9%
0-90	1094.2	95.7%
90-180	49.8	4.3%
0-180	1143.9	100.0%

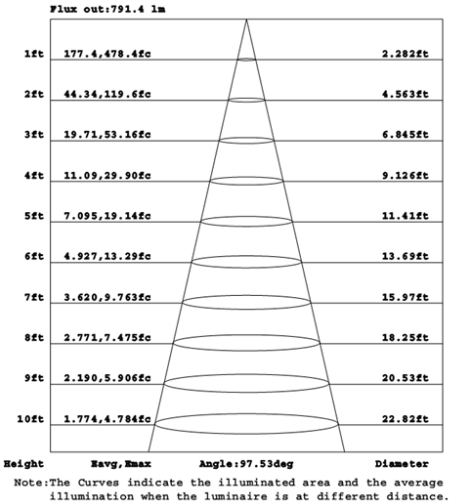
Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	44.9	3.9%	90-100	7.2	0.6%
10-20	127.3	11.1%	100-110	7.1	0.6%
20-30	189.1	16.5%	110-120	7.1	0.6%
30-40	220.1	19.2%	120-130	7.0	0.6%
40-50	210.0	18.4%	130-140	6.6	0.6%
50-60	163.1	14.3%	140-150	5.9	0.5%
60-70	90.7	7.9%	150-160	4.7	0.4%
70-80	34.4	3.0%	160-170	3.2	0.3%
80-90	14.5	1.3%	170-180	1.1	0.1%

Photometric Data







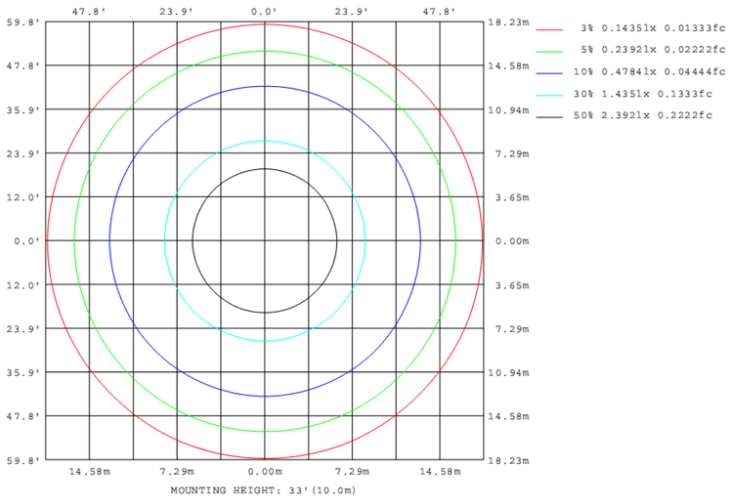
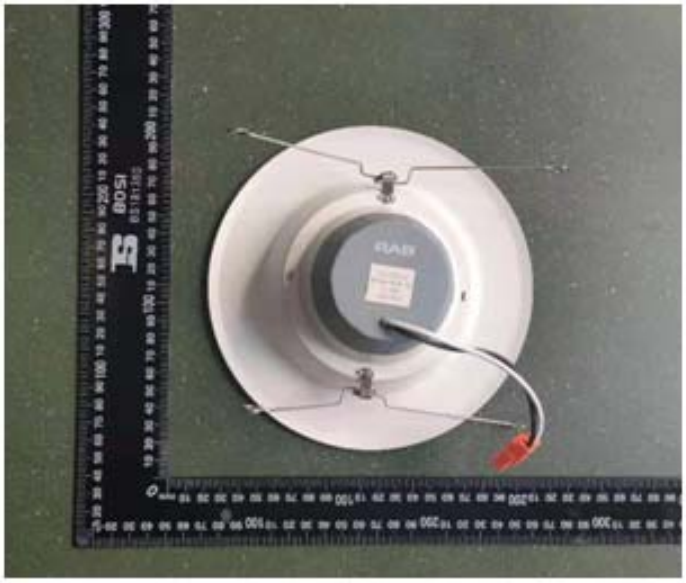
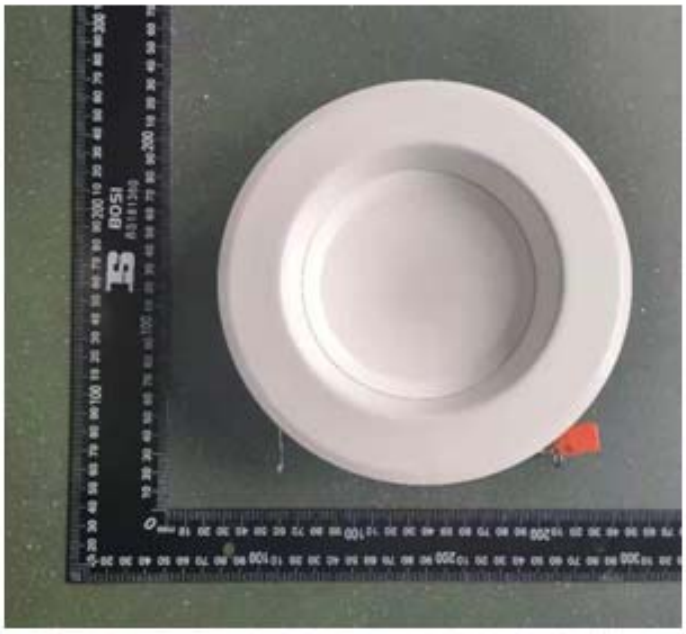


Table--1 UNIT: cd

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	478	477	476	476	475	475	474	475	478	477	476	476	475	475	474	475			
5	476	475	473	473	473	472	472	472	476	474	473	472	472	472	472	471			
10	467	467	466	465	465	465	464	464	468	466	465	464	464	463	464	463			
15	454	453	452	452	452	452	451	451	454	452	451	450	451	450	450	450			
20	436	435	434	434	433	434	433	433	436	433	433	432	432	432	432	431			
25	413	413	412	412	411	411	410	410	413	410	410	409	410	409	410	409			
30	386	386	385	386	385	385	383	384	386	383	383	382	383	382	383	382			
35	355	356	355	356	354	355	353	353	355	353	353	351	353	352	353	351			
40	318	315	318	315	317	313	316	312	314	315	311	314	311	315	312	315			
45	276	274	276	274	276	272	274	271	272	273	269	271	269	272	270	273			
50	232	230	232	230	231	229	230	227	228	228	225	227	225	228	226	229			
55	185	185	187	185	185	184	183	182	182	181	180	180	180	181	181	182			
60	137	139	138	139	137	138	136	136	136	133	133	132	134	133	135	135			
65	91.0	92.9	91.9	93.2	91.5	91.9	89.7	90.1	89.9	87.5	88.0	86.7	88.3	87.9	89.7	89.2			
70	51.8	53.2	52.8	53.8	52.5	52.7	51.2	51.4	51.1	49.5	50.0	49.3	50.4	50.0	51.1	50.6			
75	29.8	30.5	30.2	30.6	30.0	30.1	29.5	29.6	29.4	28.7	28.9	28.5	29.0	28.8	29.4	29.1			
80	20.3	20.6	20.5	20.7	20.5	20.5	20.2	20.2	20.3	20.0	20.1	19.9	20.1	20.0	20.1	20.1			
85	13.0	13.3	13.2	13.4	13.1	13.3	12.9	13.1	13.5	13.1	13.2	12.9	13.2	12.8	13.2	13.1			
90	6.54	6.54	6.51	6.51	6.50	6.48	6.48	6.46	7.08	7.06	7.04	7.03	7.01	7.01	7.00	7.03			
95	6.25	6.23	6.21	6.21	6.19	6.18	6.18	6.17	7.04	7.02	7.01	6.99	6.97	6.96	6.96	6.97			
100	6.13	6.11	6.10	6.09	6.08	6.07	6.07	6.07	7.11	7.09	7.07	7.06	7.04	7.02	7.02	7.03			
105	6.16	6.14	6.13	6.11	6.10	6.10	6.10	6.10	7.25	7.23	7.22	7.21	7.18	7.17	7.18	7.17			
110	6.31	6.28	6.26	6.25	6.24	6.24	6.24	6.23	7.48	7.46	7.45	7.44	7.42	7.41	7.39	7.40			
115	6.53	6.51	6.49	6.47	6.48	6.46	6.48	6.46	7.76	7.74	7.72	7.72	7.69	7.69	7.66	7.67			
120	6.84	6.82	6.80	6.78	6.77	6.77	6.78	6.77	8.07	8.05	8.03	8.02	8.00	7.99	7.97	7.98			
125	7.20	7.16	7.15	7.12	7.12	7.12	7.13	7.13	8.40	8.38	8.37	8.35	8.33	8.33	8.30	8.31			
130	7.58	7.55	7.53	7.51	7.51	7.49	7.50	7.50	8.75	8.73	8.71	8.70	8.67	8.67	8.65	8.66			
135	7.99	7.96	7.93	7.90	7.91	7.89	7.91	7.90	9.14	9.10	9.09	9.07	9.05	9.04	9.03	9.02			
140	8.42	8.39	8.37	8.35	8.35	8.32	8.35	8.33	9.53	9.50	9.48	9.47	9.44	9.43	9.41	9.41			
145	8.89	8.85	8.83	8.80	8.80	8.78	8.81	8.79	9.94	9.91	9.89	9.87	9.84	9.84	9.81	9.82			
150	9.39	9.34	9.32	9.29	9.30	9.29	9.30	9.28	10.4	10.3	10.3	10.3	10.3	10.3	10.2	10.2			
155	9.91	9.87	9.85	9.82	9.82	9.81	9.82	9.81	10.8	10.7	10.7	10.7	10.7	10.7	10.6	10.7			
160	10.5	10.4	10.4	10.4	10.4	10.4	10.4	10.4	11.2	11.1	11.1	11.1	11.1	11.1	11.0	11.0			
165	11.0	10.9	10.9	10.9	10.9	10.9	10.9	10.9	11.5	11.5	11.4	11.4	11.4	11.4	11.4	11.4			
170	11.4	11.4	11.4	11.3	11.3	11.3	11.3	11.3	11.8	11.7	11.7	11.7	11.7	11.7	11.6	11.6			
175	11.8	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.9	11.9	11.9	11.8	11.8	11.8	11.8	11.8			
180	12.0	11.9	11.9	11.9	11.9	11.9	11.8	11.9	12.0	11.9	11.9	11.9	11.9	11.9	11.9	11.9			

3. Product Photo





******** END OF REPORT ********