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): DLR0066(R6R14935120WS)

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	14.0W
Rated Initial Lamp Lumen	1200 lm
Declared CCT	3500K

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	DLR0066(R6R14935120WS)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250050	120.0	60	0.1180	13.90	0.983

Chromaticity Measurement - Sphere-Spectroradiometer Method:

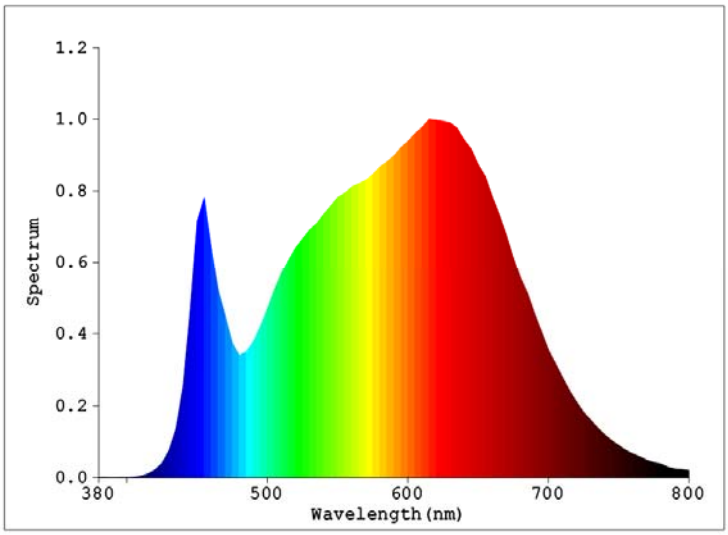
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3497
Duv	0.00063
Chromaticity (x, y)	x=0.4062 y=0.3926
Chromaticity (u', v')	u'=0.2355 v'=0.5122
Color Rendering Index (CRI)	93.8
R9	71

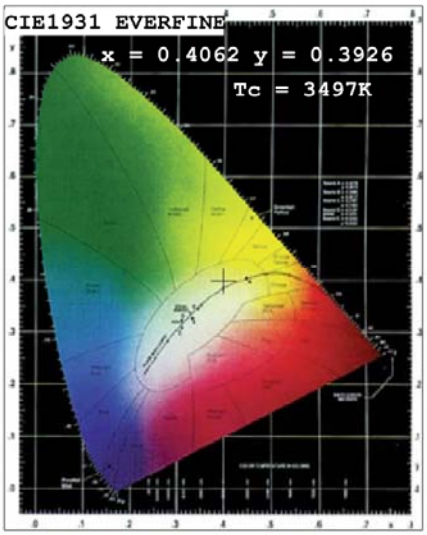
Special Color Rendering Indices			
R1	94	R9	71
R2	96	R10	90
R3	97	R11	93
R4	93	R12	74
R5	93	R13	95
R6	94	R14	98
R7	95	R15	92
R8	88	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1217.3
Luminous Efficacy (lm/W)	87.58
Beam Angle (°)	98.9
Center Beam Candle Power (cd)	500.2

Spectral Power Distribution & Chromaticity Diagram



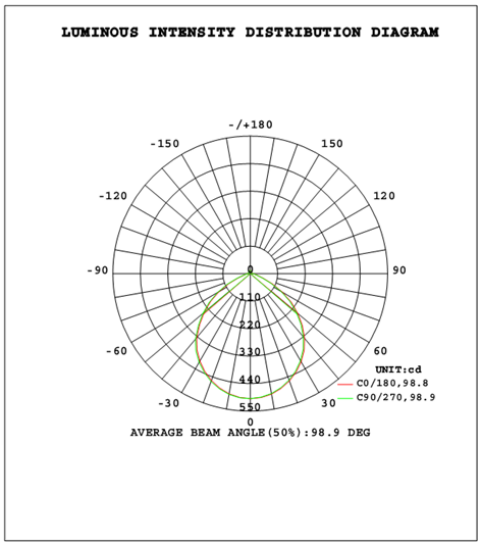


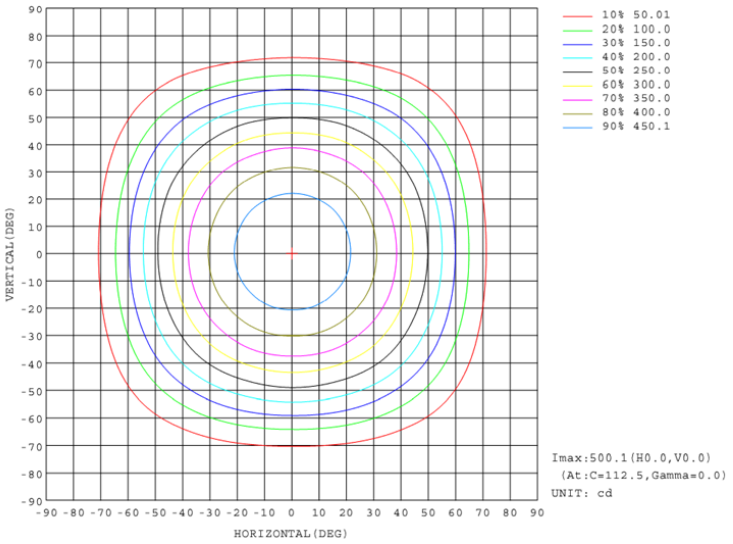
Zonal Lumen Tabulation

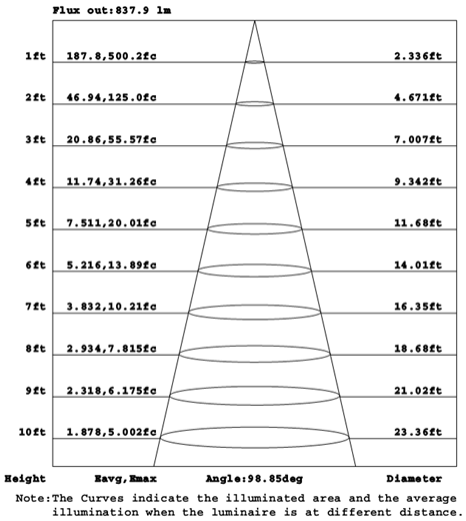
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	380.4	31.3%
0-40	613.7	50.4%
0-60	1013.7	83.3%
60-90	150.5	12.4%
70-100	60.3	5.0%
90-120	23.0	1.9%
0-90	1164.1	95.6%
90-180	53.2	4.4%
0-180	1217.3	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	47.2	3.9%	90-100	7.8	0.6%
10-20	133.9	11.0%	100-110	7.6	0.6%
20-30	199.4	16.4%	110-120	7.6	0.6%
30-40	233.3	19.2%	120-130	7.4	0.6%
40-50	224.2	18.4%	130-140	7.0	0.6%
50-60	175.8	14.4%	140-150	6.2	0.5%
60-70	98.0	8.1%	150-160	5.0	0.4%
70-80	36.8	3.0%	160-170	3.3	0.3%
80-90	15.7	1.3%	170-180	1.2	0.1%

Photometric Data







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

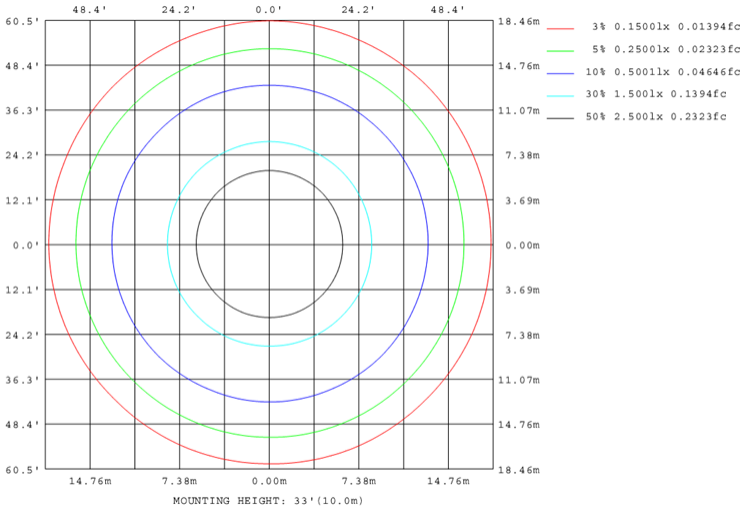
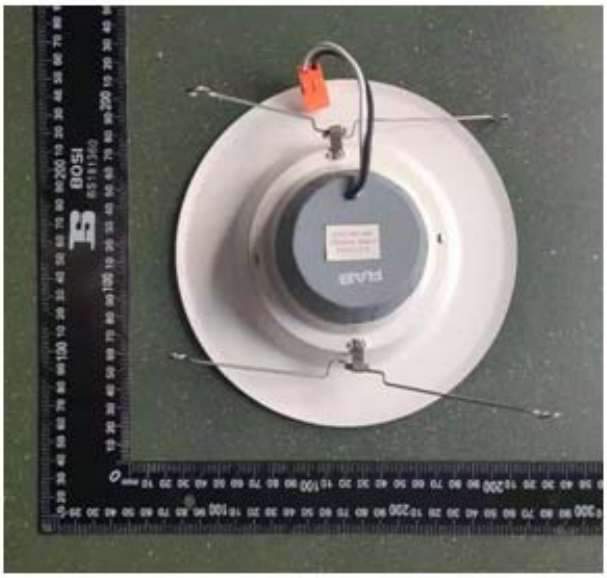
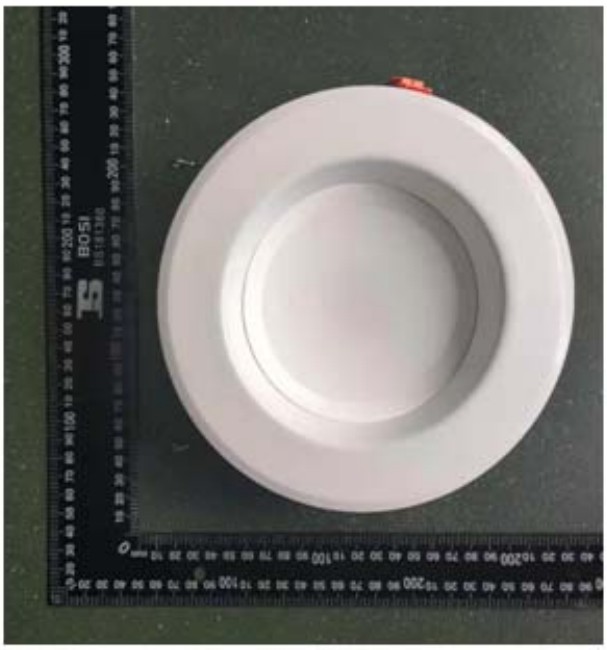


Table--1 UNIT: cd

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	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500			
5	497	497	497	497	496	496	496	497	497	497	497	498	498	498	498	498			
10	489	489	488	488	487	487	487	488	488	489	489	490	490	490	490	490			
15	475	475	473	473	473	473	472	473	474	475	476	476	477	477	477	476			
20	457	457	455	455	453	454	453	454	455	456	457	458	459	459	459	458			
25	434	433	431	431	430	430	429	431	432	432	434	435	437	436	437	435			
30	407	406	404	403	402	402	401	403	404	405	407	408	410	409	410	408			
35	376	375	372	372	370	370	369	371	372	373	376	377	379	378	379	377			
40	338	337	334	333	330	331	330	333	334	335	338	339	341	340	341	339			
45	294	290	290	286	287	284	287	285	287	292	291	296	294	297	294	296			
50	248	244	244	240	241	238	240	240	241	246	246	250	249	252	249	250			
55	201	197	197	193	193	191	192	192	194	198	199	202	202	204	202	202			
60	149	148	144	144	141	142	140	143	145	146	150	150	153	152	153	151			
65	98.7	98.0	94.6	94.3	91.8	92.6	91.5	93.7	95.7	96.5	99.8	100	103	103	103	101			
70	55.9	55.2	52.9	52.9	51.5	52.1	51.3	52.6	53.7	54.1	56.6	57.1	59.5	58.8	59.6	57.6			
75	31.7	31.4	30.4	30.3	29.7	29.9	29.6	30.2	30.6	30.8	31.8	32.0	32.9	32.7	33.1	32.3			
80	22.0	22.0	21.7	21.7	21.4	21.5	21.3	21.5	21.8	21.8	22.2	22.3	22.6	22.4	22.5	22.2			
85	14.2	14.2	13.6	13.6	13.1	13.2	12.9	13.3	14.1	14.1	14.7	14.9	15.3	15.2	15.4	15.0			
90	7.02	6.99	6.97	6.95	6.93	6.93	6.94	6.95	7.57	7.58	7.60	7.61	7.68	7.65	7.72	7.65			
95	6.70	6.68	6.68	6.67	6.66	6.66	6.67	6.67	7.51	7.52	7.52	7.51	7.51	7.51	7.51	7.53			
100	6.59	6.58	6.58	6.58	6.59	6.58	6.59	6.59	7.57	7.57	7.56	7.56	7.54	7.55	7.55	7.57			
105	6.63	6.61	6.62	6.62	6.65	6.64	6.65	6.64	7.70	7.71	7.69	7.69	7.68	7.68	7.68	7.70			
110	6.76	6.75	6.77	6.77	6.79	6.79	6.80	6.80	7.94	7.94	7.91	7.91	7.89	7.90	7.90	7.92			
115	6.98	6.99	7.01	7.01	7.04	7.03	7.06	7.04	8.21	8.21	8.18	8.18	8.16	8.17	8.17	8.20			
120	7.29	7.30	7.33	7.33	7.35	7.35	7.38	7.35	8.53	8.53	8.48	8.49	8.48	8.48	8.47	8.51			
125	7.65	7.65	7.69	7.70	7.72	7.72	7.75	7.74	8.86	8.86	8.83	8.82	8.80	8.82	8.82	8.86			
130	8.03	8.04	8.08	8.09	8.12	8.11	8.14	8.13	9.22	9.21	9.18	9.18	9.15	9.18	9.17	9.20			
135	8.47	8.47	8.51	8.52	8.56	8.56	8.58	8.57	9.59	9.58	9.55	9.55	9.52	9.55	9.55	9.58			
140	8.94	8.94	8.99	8.99	9.03	9.03	9.06	9.04	9.99	9.99	9.95	9.95	9.92	9.95	9.95	9.98			
145	9.43	9.43	9.48	9.48	9.52	9.52	9.55	9.52	10.4	10.4	10.4	10.4	10.4	10.4	10.4	10.4			
150	9.95	9.95	10.0	10.0	10.0	10.0	10.1	10.0	10.9	10.9	10.8	10.8	10.8	10.8	10.8	10.9			
155	10.5	10.5	10.5	10.5	10.6	10.6	10.6	10.6	11.3	11.3	11.3	11.3	11.2	11.3	11.3	11.3			
160	11.0	11.0	11.1	11.1	11.1	11.1	11.2	11.1	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7			
165	11.6	11.6	11.6	11.6	11.6	11.6	11.7	11.7	12.1	12.1	12.1	12.1	12.0	12.1	12.1	12.1			
170	12.0	12.0	12.1	12.1	12.1	12.1	12.1	12.1	12.4	12.4	12.3	12.3	12.3	12.3	12.4	12.4			
175	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.6			
180	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6			

3. Product Photo





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