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): DLR0082(R6S10940120WB)

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	10.0W
Rated Initial Lamp Lumen	900 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:**	25.6 ºC
Test Orientation	As intended	**Stabilization Time (min)**	90
Model Number	DLR0082(R6S10940120WB)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250066	120.0	60	0.084	9.98	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

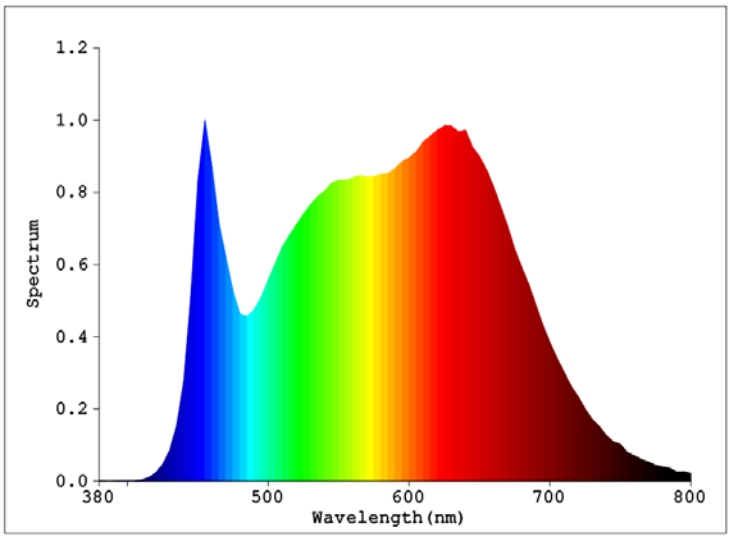
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3935
Duv	0.00087
Chromaticity (x, y)	x=0.3840 y=0.3808
Chromaticity (u', v')	u'=0.2258 v'=0.5039
Color Rendering Index (CRI)	96.2
R9	89

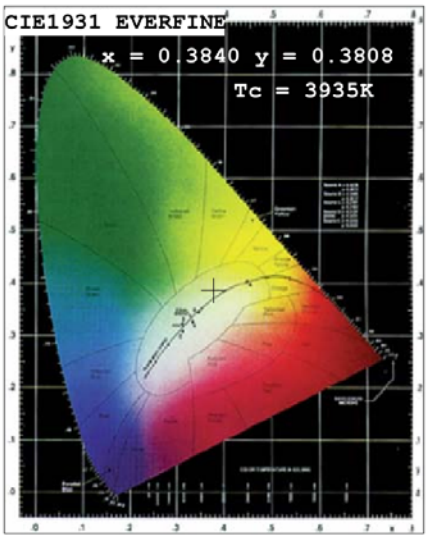
Special Color Rendering Indices			
R1	97	R9	89
R2	99	R10	95
R3	97	R11	95
R4	95	R12	72
R5	95	R13	98
R6	96	R14	98
R7	96	R15	96
R8	94	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	989.44
Luminous Efficacy (lm/W)	99.14
Beam Angle (°)	114.4
Center Beam Candle Power (cd)	329.4

Spectral Power Distribution & Chromaticity Diagram



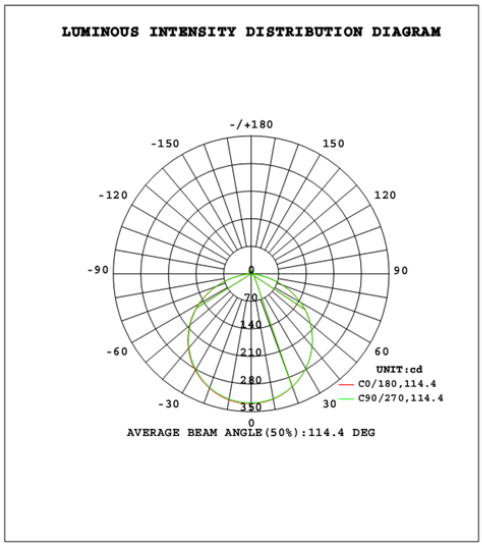


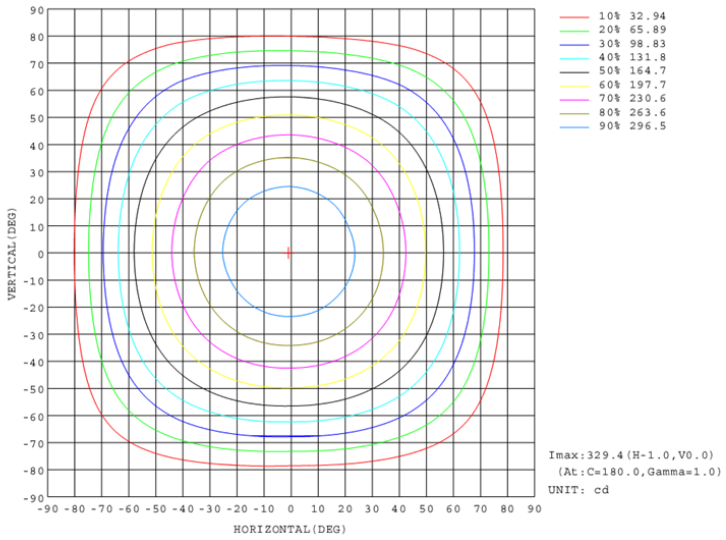
Zonal Lumen Tabulation

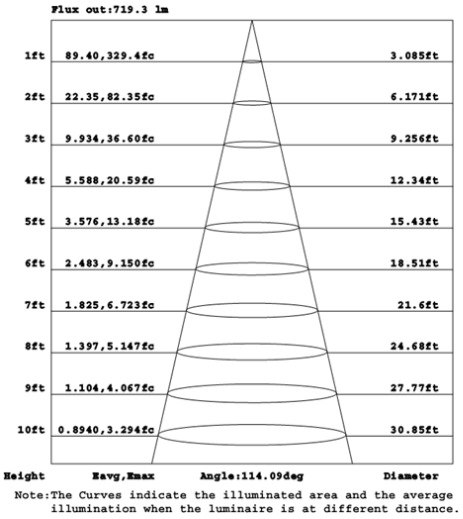
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	255.7	25.8%
0-40	420.0	42.4%
0-60	748.5	75.6%
60-90	197.8	20.0%
70-100	84.9	8.6%
90-120	19.7	2.0%
0-90	946.3	95.6%
90-180	43.2	4.4%
0-180	989.4	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	31.1	3.1%	90-100	6.9	0.7%
10-20	89.1	9.0%	100-110	6.5	0.7%
20-30	135.5	13.7%	110-120	6.3	0.6%
30-40	164.3	16.6%	120-130	5.9	0.6%
40-50	171.7	17.3%	130-140	5.5	0.6%
50-60	156.8	15.8%	140-150	4.8	0.5%
60-70	119.8	12.1%	150-160	3.8	0.4%
70-80	63.9	6.5%	160-170	2.5	0.3%
80-90	14.1	1.4%	170-180	0.9	0.1%

Photometric Data







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

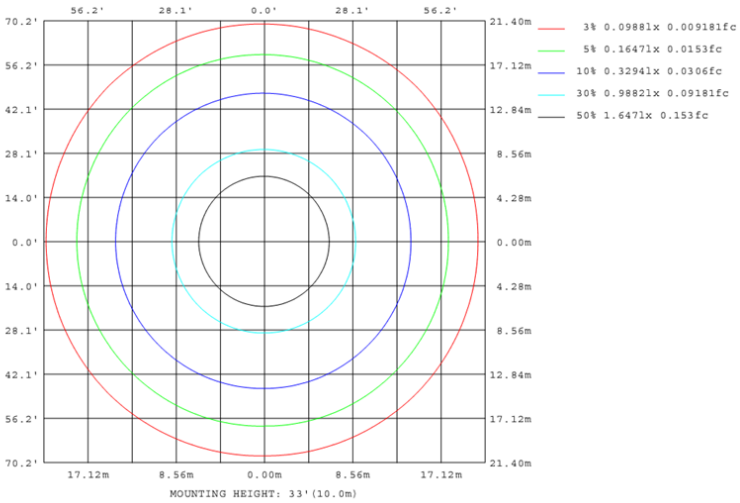
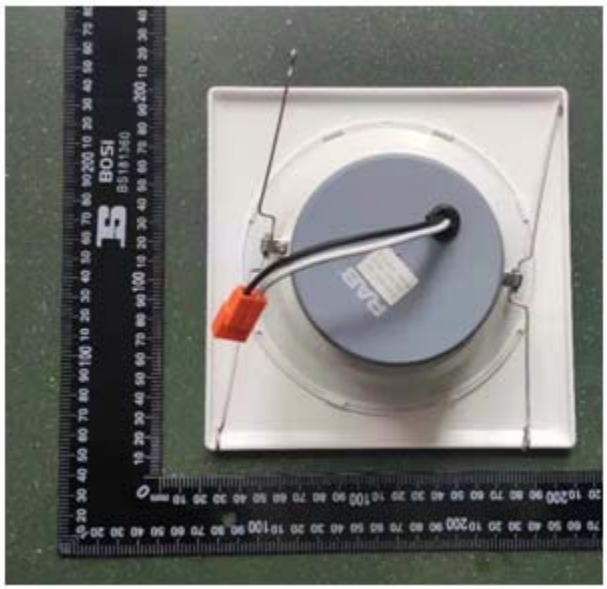
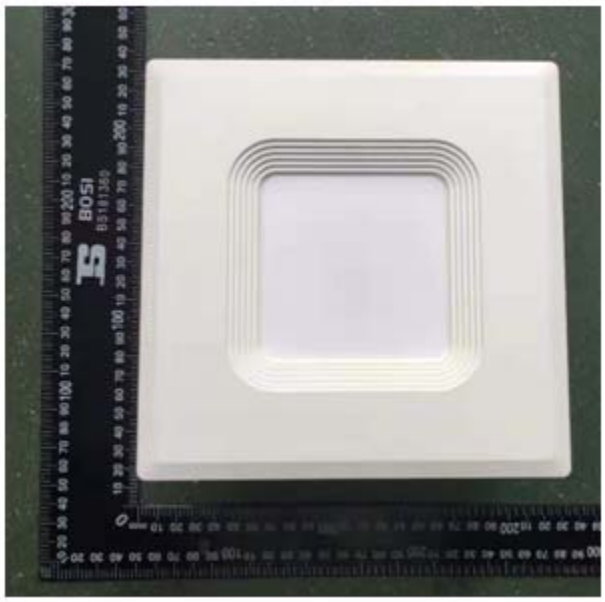


Table--1 UNIT: cd

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	329	329	328	328	328	328	328	327	329	329	328	328	328	328	328	327			
5	327	327	327	326	326	326	326	326	329	328	328	327	327	326	326	326			
10	323	322	322	322	322	322	322	323	325	324	324	323	323	322	322	321			
15	315	315	315	315	315	315	316	316	318	318	318	317	316	315	315	314			
20	305	305	304	305	305	306	306	307	309	309	309	308	307	306	305	304			
25	293	292	292	292	292	293	294	295	297	297	297	296	295	294	293	292			
30	278	277	277	277	278	279	280	281	283	283	283	282	281	279	278	277			
35	260	260	260	260	260	262	263	264	267	266	266	265	264	263	262	260			
40	241	241	240	241	241	243	244	246	248	247	248	246	245	243	243	240			
45	219	219	219	220	220	222	224	225	227	227	227	226	224	223	222	219			
50	196	196	196	197	197	199	201	202	204	204	205	203	202	200	199	196			
55	172	172	171	172	172	175	176	178	180	180	181	179	178	176	175	172			
60	145	146	145	146	145	149	151	153	154	155	155	154	152	150	149	147			
65	115	116	118	117	116	120	124	125	125	126	129	126	123	122	122	118			
70	84.9	86.0	86.8	86.8	85.8	89.5	93.4	94.8	95.5	96.6	99.6	96.5	93.5	92.1	92.4	88.4			
75	54.1	55.4	55.4	56.1	54.9	58.9	61.9	64.5	64.9	66.2	68.3	66.5	63.1	61.8	61.3	58.1			
80	23.3	24.4	24.9	25.1	24.3	28.0	31.2	33.2	34.0	35.5	37.6	35.2	32.3	31.1	30.9	27.2			
85	8.93	8.91	8.82	8.94	8.95	9.49	9.75	10.3	10.5	11.0	11.9	11.0	10.1	9.98	9.68	9.30			
90	6.37	6.35	6.35	6.35	6.38	6.38	6.44	6.72	7.04	7.07	7.14	7.00	6.92	6.70	6.53	6.51			
95	6.08	6.07	6.08	6.08	6.08	6.10	6.13	6.14	6.47	6.48	6.46	6.45	6.46	6.45	6.44	6.43			
100	5.90	5.89	5.90	5.90	5.90	5.91	5.93	5.92	6.46	6.47	6.46	6.46	6.46	6.47	6.47	6.46			
105	5.81	5.80	5.82	5.81	5.81	5.80	5.82	5.81	6.52	6.52	6.52	6.51	6.52	6.53	6.53	6.53			
110	5.81	5.81	5.82	5.81	5.81	5.80	5.80	5.80	6.63	6.61	6.60	6.61	6.61	6.62	6.63	6.63			
115	5.90	5.90	5.88	5.90	5.90	5.87	5.88	5.86	6.72	6.72	6.72	6.71	6.73	6.74	6.73	6.74			
120	6.03	6.03	6.03	6.04	6.03	6.00	6.00	5.98	6.85	6.85	6.84	6.85	6.86	6.87	6.87	6.88			
125	6.23	6.23	6.24	6.24	6.24	6.21	6.19	6.16	7.02	7.01	7.02	7.01	7.03	7.05	7.05	7.06			
130	6.47	6.48	6.49	6.48	6.47	6.44	6.43	6.40	7.22	7.22	7.22	7.22	7.24	7.26	7.26	7.27			
135	6.75	6.76	6.76	6.76	6.75	6.71	6.70	6.67	7.46	7.46	7.46	7.46	7.49	7.50	7.51	7.53			
140	7.05	7.07	7.07	7.06	7.05	7.02	7.00	6.97	7.74	7.72	7.73	7.74	7.75	7.77	7.79	7.79			
145	7.40	7.39	7.40	7.39	7.38	7.35	7.32	7.30	8.03	8.01	8.00	8.03	8.04	8.05	8.06	8.08			
150	7.75	7.75	7.75	7.74	7.74	7.71	7.69	7.65	8.30	8.29	8.29	8.29	8.31	8.32	8.32	8.34			
155	8.09	8.09	8.10	8.09	8.09	8.05	8.04	8.00	8.55	8.53	8.54	8.55	8.56	8.56	8.57	8.58			
160	8.43	8.42	8.43	8.41	8.42	8.38	8.37	8.34	8.79	8.78	8.77	8.77	8.78	8.79	8.79	8.80			
165	8.72	8.72	8.72	8.71	8.71	8.69	8.68	8.65	9.00	8.97	8.97	8.97	8.99	8.99	8.98	8.99			
170	8.99	8.99	8.99	8.98	8.99	8.95	8.95	8.93	9.16	9.15	9.14	9.14	9.15	9.15	9.15	9.14			
175	9.19	9.19	9.18	9.18	9.17	9.16	9.15	9.14	9.27	9.26	9.28	9.26	9.26	9.25	9.24	9.24			
180	9.29	9.30	9.29	9.29	9.29	9.28	9.28	9.25	9.31	9.30	9.30	9.29	9.29	9.28	9.28	9.26			

3. Product Photo





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