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): DLR0073(R4S7840120WB)

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	7.0W
Rated Initial Lamp Lumen	700 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	DLR0073(R4S7840120WB)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
1908250057	120.0	60	0.055	6.55	0.979

Chromaticity Measurement - Sphere-Spectroradiometer Method:

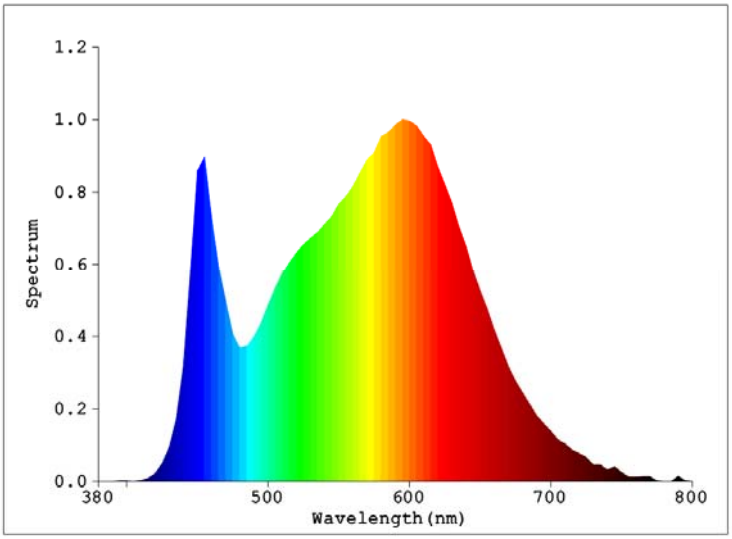
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3859
Duv	0.00150
Chromaticity (x, y)	x=0.3881 y=0.3846
Chromaticity (u', v')	u'=0.2270 v'=0.5061
Color Rendering Index (CRI)	84.5
R9	13

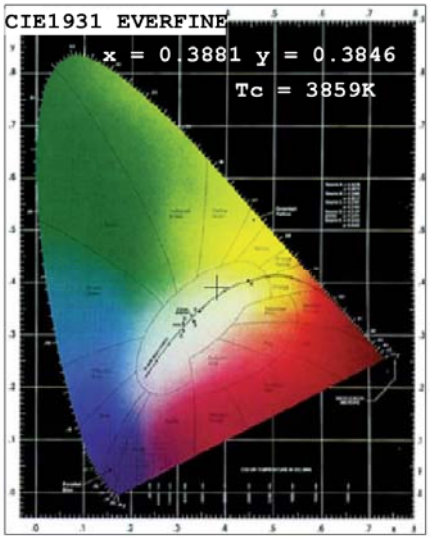
Special Color Rendering Indices			
R1	83	R9	13
R2	92	R10	82
R3	96	R11	81
R4	82	R12	66
R5	83	R13	86
R6	89	R14	99
R7	85	R15	76
R8	64	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	787.22
Luminous Efficacy (lm/W)	120.19
Beam Angle (°)	108.0
Center Beam Candle Power (cd)	281.6

Spectral Power Distribution & Chromaticity Diagram



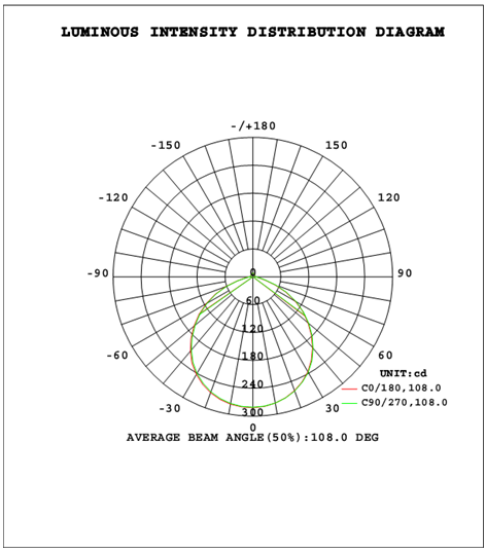


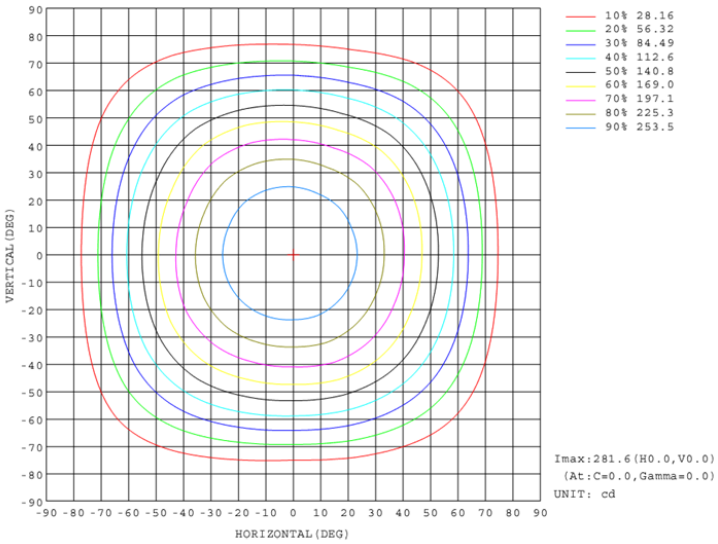
Zonal Lumen Tabulation

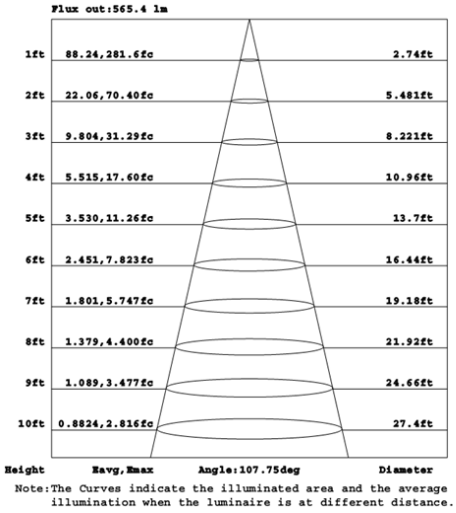
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	219.3	27.9%
0-40	359.0	45.6%
0-60	622.6	79.1%
60-90	130.3	16.5%
70-100	52.5	6.7%
90-120	15.3	1.9%
0-90	752.8	95.6%
90-180	34.4	4.4%
0-180	787.2	100.0%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	26.6	3.4%	90-100	5.3	0.7%
10-20	76.5	9.7%	100-110	5.1	0.6%
20-30	116.2	14.8%	110-120	5.0	0.6%
30-40	139.7	17.7%	120-130	4.8	0.6%
40-50	141.7	18.0%	130-140	4.5	0.6%
50-60	121.8	15.5%	140-150	3.9	0.5%
60-70	83.1	10.6%	150-160	3.2	0.4%
70-80	36.2	4.6%	160-170	2.1	0.3%
80-90	11.0	1.4%	170-180	0.7	0.1%

Photometric Data







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

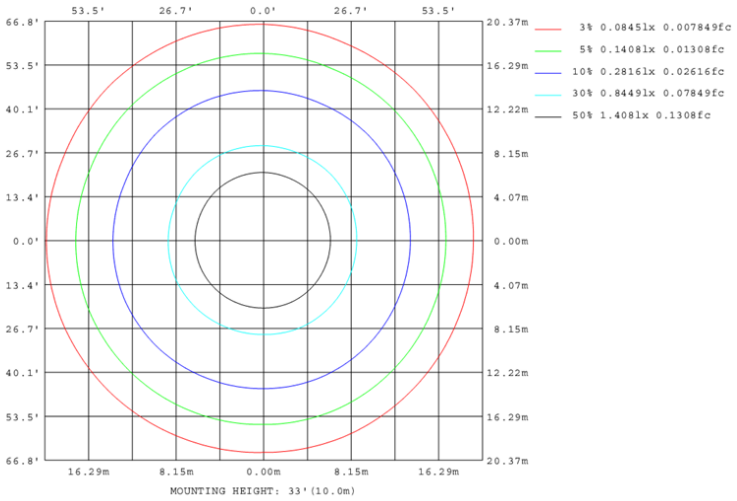
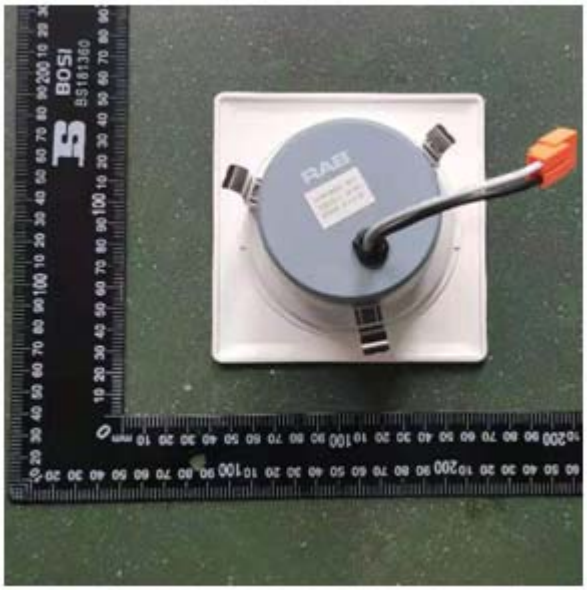
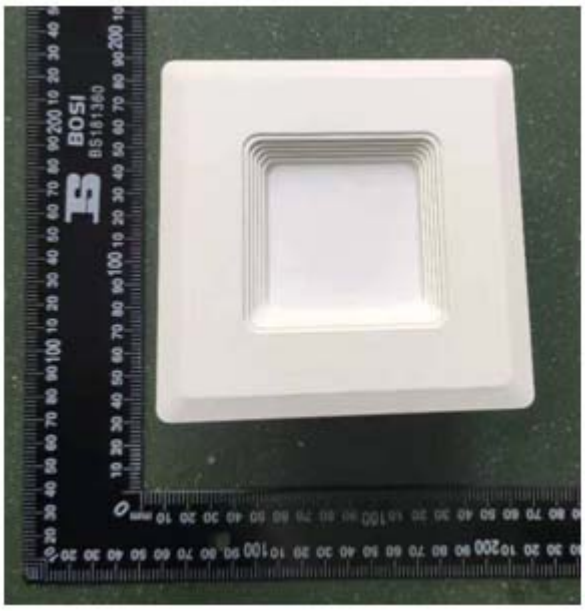


Table--1 UNIT: cd

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	282	281	281	281	281	281	281	280	282	281	281	281	281	281	281	280			
5	280	280	280	280	280	280	280	280	281	281	281	280	280	279	279	279			
10	276	276	276	276	276	277	277	277	278	278	278	277	277	276	276	275			
15	270	270	270	270	270	271	272	272	273	273	273	272	271	270	270	269			
20	261	261	261	262	262	263	264	265	266	265	265	265	264	262	262	261			
25	249	249	250	251	251	252	253	255	255	255	256	255	253	251	251	250			
30	236	236	237	238	237	239	241	243	243	242	243	242	240	238	238	236			
35	219	219	221	222	221	223	226	228	228	227	229	227	225	222	223	221			
40	199	199	202	204	201	203	208	211	209	208	212	210	206	202	204	202			
45	178	177	180	182	180	182	187	191	188	187	191	190	185	181	183	181			
50	155	154	157	158	157	159	165	167	165	164	169	167	162	158	160	158			
55	130	130	132	133	132	135	140	142	141	141	144	142	139	134	135	132			
60	105	104	105	107	107	110	114	116	116	116	118	116	114	109	109	106			
65	77.5	77.1	78.4	80.1	79.7	82.9	86.9	89.7	90.2	89.4	91.6	89.9	87.4	82.8	82.7	80.0			
70	50.0	49.6	51.2	53.1	52.3	55.4	59.6	62.7	62.6	61.8	64.6	63.1	60.1	55.5	55.6	53.2			
75	26.1	25.9	27.2	28.8	28.0	30.7	34.2	36.9	36.5	36.2	38.7	37.3	34.3	30.8	30.9	28.9			
80	14.4	14.3	14.2	14.7	15.1	16.0	17.0	18.4	18.1	17.9	19.4	18.5	17.1	16.1	15.6	14.6			
85	8.01	8.02	7.90	8.26	8.80	9.32	9.86	10.4	11.1	11.1	11.1	10.5	10.5	9.45	9.02	8.36			
90	4.79	4.76	4.77	4.80	4.80	4.82	4.95	5.11	5.67	5.63	5.71	5.31	5.19	5.06	5.03	5.02			
95	4.57	4.56	4.58	4.60	4.59	4.60	4.63	4.64	5.01	5.01	5.00	5.00	5.00	5.00	5.00	4.99			
100	4.47	4.48	4.48	4.48	4.48	4.48	4.50	4.50	5.00	5.02	5.01	5.02	5.02	5.03	5.03	5.03			
105	4.46	4.46	4.47	4.47	4.47	4.46	4.46	4.45	5.06	5.07	5.07	5.09	5.09	5.10	5.10	5.11			
110	4.53	4.52	4.53	4.53	4.53	4.51	4.49	4.48	5.18	5.17	5.18	5.19	5.20	5.22	5.22	5.22			
115	4.64	4.64	4.64	4.64	4.63	4.61	4.59	4.57	5.30	5.30	5.30	5.32	5.33	5.35	5.35	5.37			
120	4.80	4.79	4.80	4.80	4.79	4.77	4.75	4.72	5.44	5.45	5.45	5.47	5.47	5.52	5.51	5.51			
125	4.99	4.99	5.01	4.99	4.98	4.95	4.93	4.90	5.61	5.62	5.62	5.64	5.65	5.68	5.69	5.70			
130	5.22	5.22	5.23	5.21	5.21	5.17	5.15	5.11	5.80	5.81	5.80	5.83	5.84	5.88	5.88	5.90			
135	5.45	5.47	5.48	5.46	5.45	5.41	5.39	5.34	6.01	6.02	6.02	6.05	6.06	6.09	6.10	6.11			
140	5.73	5.74	5.75	5.73	5.73	5.69	5.65	5.62	6.25	6.26	6.26	6.29	6.31	6.34	6.34	6.35			
145	6.02	6.03	6.04	6.02	6.01	5.97	5.94	5.90	6.50	6.51	6.50	6.53	6.56	6.59	6.59	6.61			
150	6.33	6.34	6.35	6.33	6.31	6.28	6.26	6.21	6.77	6.77	6.77	6.79	6.81	6.84	6.84	6.85			
155	6.64	6.65	6.66	6.64	6.64	6.60	6.57	6.53	7.01	7.01	7.01	7.04	7.05	7.07	7.07	7.08			
160	6.95	6.96	6.96	6.94	6.94	6.91	6.88	6.83	7.24	7.24	7.24	7.26	7.27	7.29	7.29	7.29			
165	7.22	7.23	7.24	7.22	7.22	7.19	7.17	7.13	7.44	7.44	7.44	7.45	7.47	7.47	7.47	7.46			
170	7.47	7.49	7.49	7.47	7.47	7.45	7.42	7.39	7.59	7.60	7.59	7.61	7.62	7.63	7.61	7.61			
175	7.65	7.66	7.65	7.65	7.65	7.64	7.61	7.58	7.70	7.70	7.69	7.71	7.73	7.72	7.70	7.69			
180	7.75	7.75	7.75	7.76	7.76	7.75	7.73	7.72	7.76	7.76	7.75	7.75	7.77	7.75	7.73	7.71			

3. Product Photo





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