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## **LM-79-19 Test Report**

For

**RAB Lighting Inc.**

**(Brand Name: RAB Lighting)**

Room 609, Building C, MixC, No. 1799 Wuzhong Road Minhang District, Shanghai, China  
Xiao Xiang, 15921313292, gary.xiao@rablighting.com

**Model name(s):**

**RLB2-2F[blank, /MVS, /LCBS/MVS][blank, /E]**

**Report Type:** Testing and Report According to IES LM-79-2019  
**Type of Luminaire:** Retrofit Kits for Direct Linear Ambient Luminaires  
**Report Date:** 2024-11-15

Test & Report By:

*Ferrum Li*

Engineer: Ferrum Li

Review By:

*Garman Mo*

Manager: Garman Mo

Note: 1.The results contained in this report pertain only to the tested samples.  
2.This report does not imply product certification, approval, or endorsement by A2LA or any agency of the Federal Government.

Project No.: JDE24105 Report No.: JDE241105-E

Report Format Number STP-QP019-101-B/0

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<b>1.1 Product Information:</b>		
Model Number	RLB2-2F[blank, /MVS, /LCBS/MVS][blank, /E]	
Remark	<p>The suffix “[blank, /MVS, /LCBS/MVS]” can be “/MVS” =with motion sensor, “/LCBS/MVS” =motion sensor with Bluetooth and smart controller or Blank=no sensor and smart controller provided.</p> <p>The suffix “[blank, /E]” can be “/E” =with emergency backup driver or Blank=no emergency backup driver provided.</p>	
Representative (Tested) Model	RLB2-2F(0%,3000K)	
Model Difference	N/A	
SKU (if available)	--	
Type of Luminaire (for integral lamps, list base type and lamp type)	Retrofit Kits for Direct Linear Ambient Luminaires	
LED Manufacturer	Bridgelux Inc.	
LED Model	BXEN-30E-13H-9C1 BXEN-65E-13H-9C1	
Integral Controls Availability	Yes	
Dimming	Continuous	
Sample Number	JDE241105-E1	
Date of Receipt	2024-11-09	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaire Width	--	mm
Number of Units (modular products)	N/A	s

<b>1.2 Rated Values:</b>	
Rated Voltage / Frequency	120-277Vac, 50/60Hz
Nominal Power	20W/25W/30W/35W/40W (Power Adjustable)
Rated Initial Lamp Lumen	--
Declared CCT	3000K,3500K,4000K,5000K,6500K (Color Tunable)



**1.3 Test Specifications:**

Test item	<ol style="list-style-type: none"> <li>1. Total Luminous Flux</li> <li>2. Luminous Distribution Intensity</li> <li>3. Luminous Efficacy</li> <li>4. Electrical Parameters</li> </ol>
Reference Standard	<ol style="list-style-type: none"> <li>1. IES LM-79-2019 Optical and Electrical Measurements of Solid-State Lighting Products</li> <li>2. ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products</li> <li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li> <li>4. CIE 15-2004 Technical Report Colorimetry</li> <li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li> <li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li> </ol>
Reference Work Instruction	QD25

**1.4 Test Methods**

<p><b>1) Photometric and Light Distribution Measurement – Goniophotometer Method:</b></p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25 °C ± 1.2 °C, measured at a point not more than 1.5 m from the sample and at the same height as the sample. The humidity should be maintained between 10% and 65%. 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.</p>
<p><b>2) Electrical Measurements:</b></p> <p>Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at 25 °C ± 1.2 °C. 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.</p>



**2.1 Summary of Test Result**

Criteria Item	Measured Value		Compliance	Requirement (DLC V5.1)	
Minimum Total Luminous	4933.4		Pass	≥375 lm/ft (-10%)	
Minimum Luminous Efficacy	133.83		Pass	Standard: ≥115(-3%)	Premium: ≥130(-3%)
Minimum Power Factor	0.9614		Pass	≥0.9(-3%)	
Maximum THD %	13.34		Pass	≤20(+5)	
Zonal Lumen Requirement	0-60°	67.0	Pass	≥40(-3)	



**2.2 Electrical, Photometric and Chromaticity Measurements**

<b>Test date</b>	2024-11-12	<b>Test Ambient:</b>	25 ± 1 °C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	60
<b>Model Number</b>	RLB2-2F(0%,3000 K)	<b>Total Operating Time (min)</b>	75

**Electrical Measurement in Lithonia C2 25 MVOLT GEB10IS:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JDE241105-	120.0	60	0.3149	37.68	0.9973	6.12
E1	277.1	60	0.1377	36.69	0.9614	13.34

**Photometric Measurement in Lithonia C2 25 MVOLT GEB10IS–  
Goniophotometer Method(Test Distance:26.000m):**

Parameter	Result	
Test Voltage (V)	120	277
Frequency (Hz)	60	60
Total Luminous (lm)	5042.6	4933.4
Luminous Efficacy (lm/W)	133.83	134.46
Zonal lumens in the 0-60 °	67.0	--
Beam Angle ( °)	121.3	--
Center Beam Candle Power (cd)	1467	--

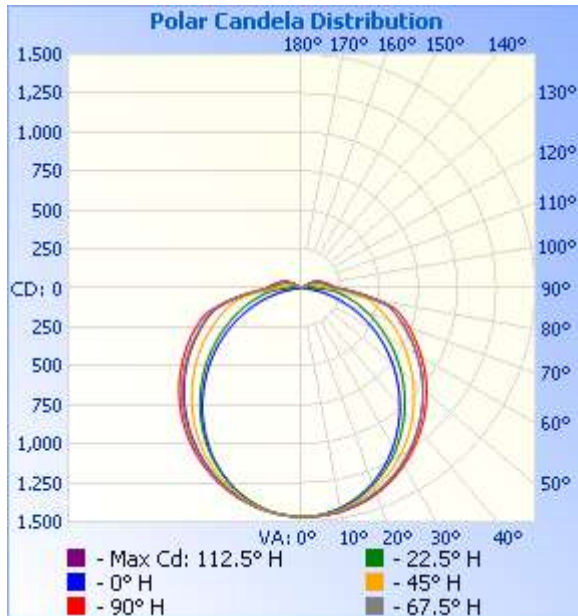


**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,139.1	22.6%
0-40	1,870.1	37.1%
0-60	3,378.7	67%
60-90	1,403.5	27.8%
70-100	894.8	17.7%
90-120	246.2	4.9%
0-90	4,782.2	94.8%
90-180	259.8	5.2%
0-180	5,042.1	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	138.8	2.8%	90-100	126.5	2.5%
10-20	397.5	7.9%	100-110	79.5	1.6%
20-30	602.9	12.0%	110-120	40.2	0.8%
30-40	730.9	14.5%	120-130	7.6	0.2%
40-50	773.0	15.3%	130-140	1.7	0%
50-60	735.7	14.6%	140-150	1.5	0%
60-70	635.1	12.6%	150-160	1.3	0%
70-80	494.4	9.8%	160-170	1.1	0%
80-90	273.9	5.4%	170-180	0.5	0%

**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
4.0ft	91.7 fc	10.3 ft	21.5 ft
8.0ft	22.9 fc	20.5 ft	43.0 ft
12.0ft	10.2 fc	30.8 ft	64.4 ft
16.0ft	5.7 fc	41.1 ft	85.9 ft
20.0ft	3.7 fc	51.4 ft	107.4 ft
24.0ft	2.5 fc	61.6 ft	128.9 ft
28.0ft	1.9 fc	71.9 ft	150.4 ft
32.0ft	1.4 fc	82.2 ft	171.8 ft

■ Vert. Spread: 104.2°  
■ Horiz. Spread: 139.1°

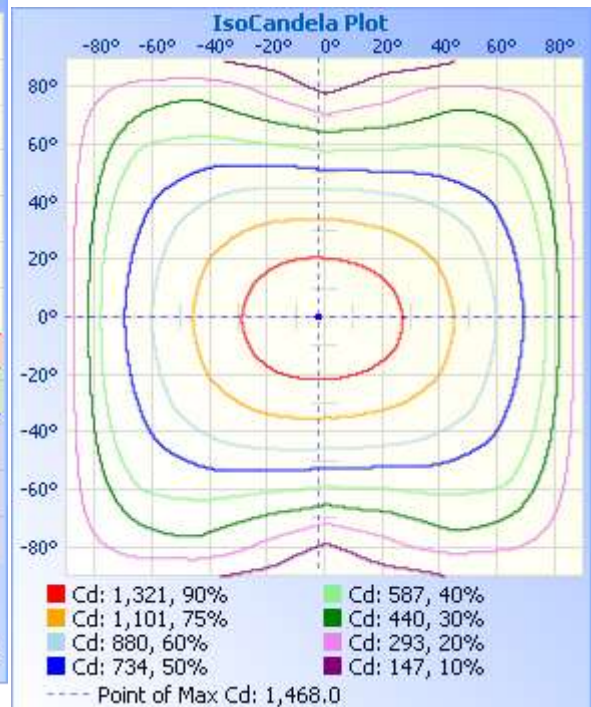
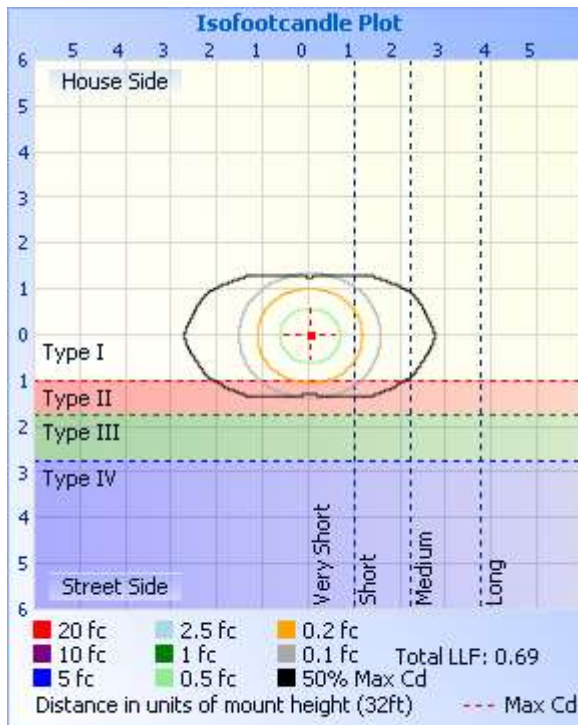




Table--1 UNIT: cd

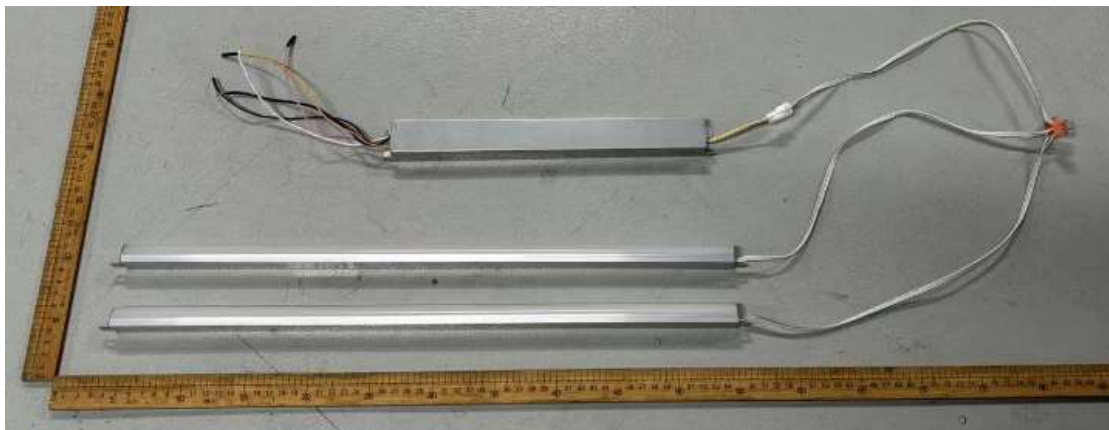
γ (DEG)	C (DEG)																			
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5				
0	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467				
5	1459	1458	1457	1456	1458	1459	1462	1464	1466	1466	1465	1461	1459	1458	1459	1460				
10	1443	1440	1435	1430	1431	1436	1444	1451	1455	1453	1448	1440	1434	1435	1439	1444				
15	1417	1410	1398	1388	1388	1398	1413	1427	1435	1431	1418	1403	1392	1394	1404	1417				
20	1383	1372	1351	1332	1330	1345	1370	1393	1404	1396	1376	1351	1336	1340	1359	1381				
25	1341	1324	1293	1264	1258	1280	1317	1348	1364	1352	1323	1287	1267	1273	1303	1335				
30	1290	1269	1225	1184	1175	1204	1253	1294	1313	1298	1258	1212	1185	1196	1238	1280				
35	1233	1206	1149	1096	1083	1120	1182	1233	1255	1236	1186	1128	1092	1109	1164	1219				
40	1169	1137	1067	1001	982	1029	1103	1164	1190	1168	1106	1036	993	1015	1084	1151				
45	1099	1063	981	900	876	932	1019	1092	1122	1094	1022	940	887	916	999	1078				
50	1027	987	894	797	766	833	935	1016	1048	1017	936	838	777	815	912	1002				
55	952	910	805	693	653	732	850	937	972	940	849	737	664	712	825	925				
60	873	829	720	591	541	633	764	855	890	859	764	634	550	610	740	843				
65	796	749	633	492	427	536	679	770	811	776	680	535	436	512	652	760				
70	719	672	550	399	315	445	595	693	735	699	594	442	324	421	569	684				
75	637	594	474	315	208	361	518	620	659	623	516	357	216	336	494	609				
80	486	461	391	236	111	278	443	508	529	519	441	273	117	259	409	474				
85	333	309	253	161	34.3	206	302	348	367	357	311	203	38.8	182	271	323				
90	223	202	144	64.5	0.20	89.1	172	220	238	226	179	93.8	0.00	82.8	160	210				
95	197	174	124	40.7	0.00	56.4	135	179	194	181	134	51.5	0.00	50.5	132	183				
100	170	150	95.3	24.9	0.00	42.1	109	152	167	151	106	36.2	0.00	35.5	104	154				
105	146	127	78.9	3.27	0.10	15.2	90.9	130	144	129	87.1	8.64	0.00	7.85	86.6	131				
110	125	107	49.5	1.89	1.10	2.29	74.3	111	124	109	68.0	0.40	0.00	0.70	59.5	111				
115	97.9	74.8	16.1	1.89	1.40	2.19	36.2	92.5	105	89.3	31.3	0.79	0.50	1.00	23.0	79.5				
120	54.6	33.4	3.20	2.89	2.19	2.40	5.13	53.2	71.9	50.5	1.26	0.99	0.80	1.20	1.40	37.6				
125	14.5	3.98	3.20	3.29	2.69	2.99	3.21	15.7	31.4	14.0	1.20	1.29	1.29	1.40	1.30	3.55				
130	2.71	2.90	3.20	3.19	2.89	2.99	3.21	2.91	0.90	1.10	1.20	1.49	1.69	1.60	1.30	1.11				
135	2.71	2.90	3.20	3.19	2.79	2.99	3.21	2.91	0.90	1.10	1.30	1.80	1.99	1.80	1.30	1.11				
140	2.61	2.90	3.20	3.39	2.39	3.00	3.21	2.91	0.90	1.10	1.40	2.19	2.09	2.10	1.50	1.11				
145	2.61	2.91	3.20	3.79	2.39	3.29	3.21	2.92	1.01	1.30	1.70	2.29	2.09	2.49	1.51	1.31				
150	2.61	3.00	3.60	4.28	2.39	3.79	3.60	3.01	1.10	1.40	1.80	2.29	2.09	2.79	1.81	1.51				
155	3.00	3.10	4.09	4.58	2.89	4.39	4.30	3.01	1.20	1.40	1.80	2.29	2.39	3.09	2.01	1.61				
160	3.11	3.41	4.49	4.98	2.89	4.69	4.51	3.52	1.30	1.40	1.90	2.49	3.08	3.09	2.21	1.80				
165	3.11	3.71	4.99	5.58	3.09	4.99	4.91	4.12	2.91	3.00	3.49	4.48	5.38	3.29	5.02	4.01				
170	3.51	4.51	5.20	6.08	3.39	5.48	5.21	4.62	3.61	3.80	4.49	5.18	6.18	3.29	5.71	5.22				
175	3.81	4.61	5.19	6.08	3.29	5.49	5.21	4.62	3.61	4.21	4.59	5.18	6.18	3.29	5.61	5.22				
180	3.81	4.61	5.19	6.18	3.29	5.49	5.21	4.83	3.61	3.91	4.59	5.18	6.18	3.29	5.51	5.22				



### 3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-355	Goniophotometer system	Verified by D908S standard lamp	
ST-R-359	Standard Lamp D908S	2022-07-19	2025-07-18
ST-R-357	AC Power Source	2024-01-29	2025-01-28
ST-R-S-422	Power Meter for Goniophotometer	2024-05-29	2025-05-28
ST-R-S-354	hygrothermograph for Goniophotometer	2024-05-29	2025-05-28
Uncertainty: Photometric Measurement(Goniophotometer): 2.94%, k=2			

**4. Product Photo**



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