



## **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):**

**RLB-4C[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:** 2024-11-22

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.



<b>1.1 Product Information:</b>		
Model Number	RLB-4C[blank, /MVS, /LCBS/MVS][blank, /E]	
Remark	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. The suffix “[blank, /E]” can be “/E” =with emergency backup driver or Blank=no emergency backup driver provided.	
Representative (Tested) Model	RLB-4C(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-K1	
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 (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**

**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 ± 1.2 °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.

**2) 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 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.



**2.1 Summary of Test Result**

Criteria Item	Measured Value		Compliance	Requirement (DLC V5.1)	
Minimum Total Luminous	4411.3		Pass	≥375 lm/ft (-10%)	
Minimum Luminous Efficacy	150.83		Pass	Standard: ≥115(-3%)	Premium: ≥130(-3%)
Minimum Power Factor	0.9515		Pass	≥0.9(-3%)	
Maximum THD %	11.73		Pass	≤20(+5)	
Zonal Lumen Requirement	0-60°	80.9	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>	RLB-4C(0%,300 0K)	<b>Total Operating Time (min)</b>	75

**Electrical Measurement in Lithonia C2 32 MVOLT GEB10IS:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
JDE241105-K1	120.0	60	0.2474	29.55	0.9952	8.11
	277.2	60	0.1107	29.19	0.9515	11.73

**Photometric Measurement in Lithonia C2 32 MVOLT GEB10IS–  
Goniophotometer Method(Test Distance:26.000m):**

Parameter	Result	
Test Voltage (V)	120	277
Frequency (Hz)	60	60
Total Luminous (lm)	4456.4	4411.3
Luminous Efficacy (lm/W)	150.83	151.11
Zonal lumens in the 0-60 °	80.9	--
Beam Angle ( °)	108.8	--
Center Beam Candle Power (cd)	1550	--

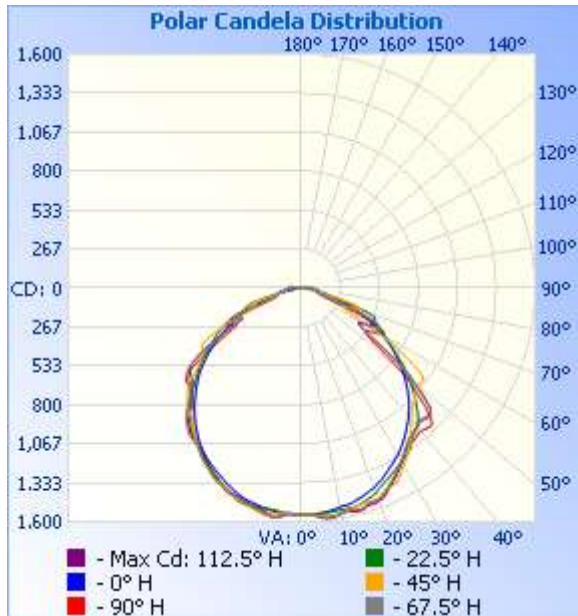


**Zonal Lumen Tabulation**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,239.5	27.8%
0-40	2,038.5	45.7%
0-60	3,604.4	80.9%
60-90	790.1	17.7%
70-100	354.9	8%
90-120	54.3	1.2%
0-90	4,394.5	98.6%
90-180	61.4	1.4%
0-180	4,455.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	148.5	3.3%	90-100	48.6	1.1%
10-20	431.7	9.7%	100-110	4.5	0.1%
20-30	659.3	14.8%	110-120	1.1	0%
30-40	799.0	17.9%	120-130	1.4	0%
40-50	849.0	19.1%	130-140	1.5	0%
50-60	716.8	16.1%	140-150	1.4	0%
60-70	483.8	10.9%	150-160	1.2	0%
70-80	215.4	4.8%	160-170	1.1	0%
80-90	90.8	2.0%	170-180	0.4	0%

**Photometric Data**



**Illuminance at a Distance**

	Center Beam fc	Beam Width	
4.0ft	96.9 fc	11.3 ft	10.9 ft
8.0ft	24.2 fc	22.6 ft	21.7 ft
12.0ft	10.8 fc	33.8 ft	32.6 ft
16.0ft	6.1 fc	45.1 ft	43.5 ft
20.0ft	3.9 fc	56.4 ft	54.4 ft
24.0ft	2.7 fc	67.7 ft	65.2 ft
28.0ft	2.0 fc	78.9 ft	76.1 ft
32.0ft	1.5 fc	90.2 ft	87.0 ft

Vert. Spread: 109.3°  
Horiz. Spread: 107.3°

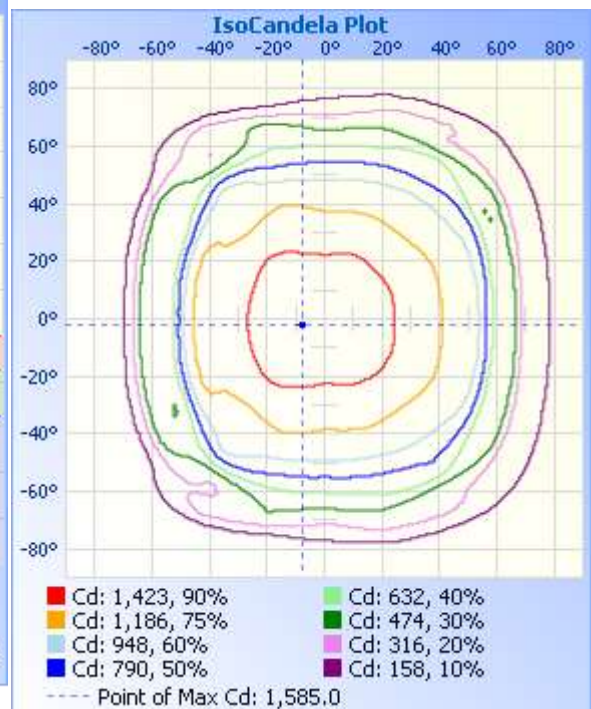
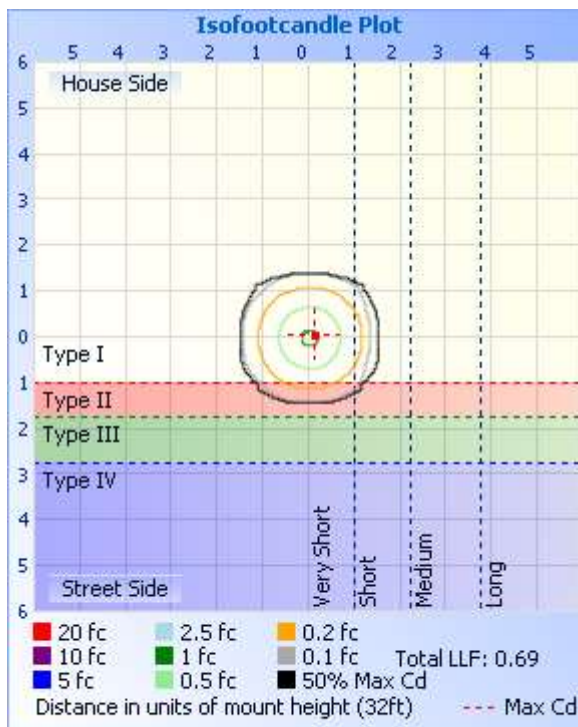




Table--1

UNIT: °C

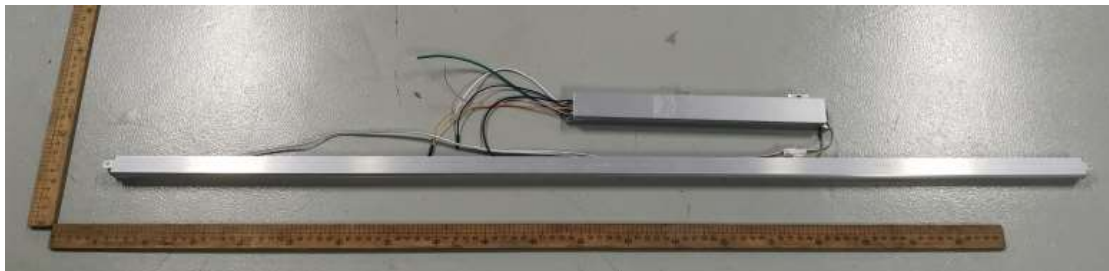
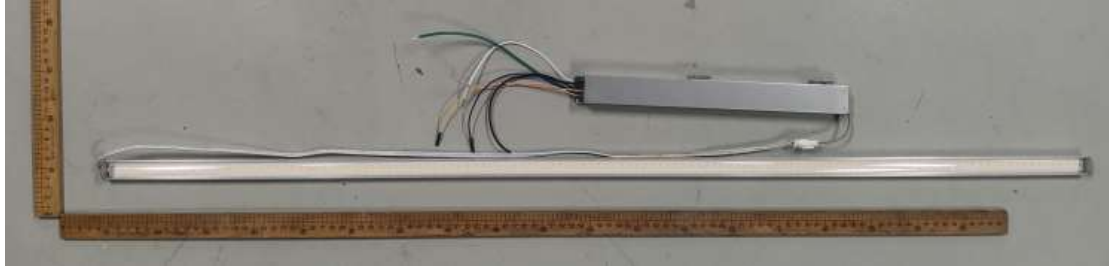
C (DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550			
5	1568	1561	1540	1540	1547	1545	1561	1569	1572	1571	1559	1544	1547	1539	1542	1563			
10	1544	1555	1564	1528	1521	1543	1566	1561	1564	1569	1570	1547	1525	1530	1571	1557			
15	1505	1517	1516	1528	1494	1535	1537	1567	1576	1570	1531	1541	1495	1529	1523	1521			
20	1470	1481	1469	1494	1453	1490	1531	1540	1550	1545	1522	1493	1443	1478	1478	1491			
25	1404	1421	1416	1417	1386	1425	1490	1460	1463	1471	1471	1425	1383	1412	1431	1429			
30	1329	1344	1346	1340	1318	1370	1401	1367	1368	1374	1391	1364	1320	1340	1357	1354			
35	1280	1263	1253	1265	1233	1304	1292	1272	1303	1279	1285	1320	1240	1263	1267	1282			
40	1204	1205	1157	1168	1142	1228	1174	1236	1277	1236	1166	1212	1140	1182	1172	1221			
45	1068	1079	1081	1076	1032	1108	1091	1244	1253	1233	1067	1122	1030	1070	1109	1091			
50	1018	977	993	956	912	958	1041	1000	906	1012	1004	962	917	942	995	1000			
55	868	934	830	823	784	800	975	571	539	581	988	807	779	813	837	939			
60	526	611	749	676	644	659	595	506	631	476	641	644	637	691	785	596			
65	567	486	578	567	499	558	316	556	465	559	304	518	486	564	506	531			
70	212	301	312	407	353	470	413	191	155	201	356	471	339	409	345	266			
75	171	166	274	319	211	156	210	114	116	112	241	166	199	266	213	170			
80	143	144	131	138	93.1	111	83.2	91.6	97.3	91.3	78.7	89.6	85.4	144	134	148			
85	100	99.6	109	96.8	21.6	92.8	66.8	83.4	88.2	81.7	63.9	83.9	17.6	93.0	108	99.2			
90	83.6	86.1	81.4	61.3	2.29	44.2	65.7	67.9	69.8	68.4	63.8	40.6	0.00	65.6	84.1	85.9			
95	83.5	81.0	77.6	17.4	1.36	21.9	53.6	59.4	61.7	58.9	48.2	11.7	0.00	10.2	76.6	82.9			
100	61.2	45.2	5.83	0.77	0.42	0.95	16.5	34.7	40.0	33.1	12.0	0.00	0.00	0.00	4.59	44.4			
105	3.40	1.53	0.00	0.95	1.27	0.95	1.59	5.07	5.92	3.29	0.99	0.63	1.37	0.31	0.00	0.42			
110	0.00	0.00	0.00	1.58	1.82	1.58	0.76	0.55	0.00	0.00	0.32	1.36	3.06	0.69	0.00	0.00			
115	0.00	0.00	1.06	2.76	2.35	1.90	0.95	0.57	0.09	0.21	0.63	1.99	3.33	1.37	0.50	0.00			
120	0.00	0.00	1.60	3.26	2.54	2.97	1.29	0.61	0.22	0.41	1.16	2.73	3.10	2.00	0.95	0.00			
125	0.00	0.42	1.64	3.59	2.54	3.04	1.54	0.66	0.33	0.60	1.33	3.05	3.00	2.53	0.96	0.54			
130	0.00	0.76	1.58	3.60	2.54	3.12	1.58	0.71	0.46	0.96	1.79	3.45	2.75	2.95	1.45	0.75			
135	0.11	1.03	2.00	3.62	2.54	3.18	1.81	0.75	0.67	1.17	2.10	3.43	2.79	3.22	2.02	0.97			
140	0.22	1.06	2.19	3.64	2.54	3.26	2.02	1.07	0.96	1.35	2.16	3.41	2.85	3.58	2.23	1.31			
145	0.60	1.40	2.52	3.65	2.54	3.35	2.28	1.42	1.15	1.51	2.25	3.39	3.10	3.69	2.34	1.72			
150	1.08	1.50	2.74	3.67	2.54	3.45	2.77	1.62	1.33	1.65	2.34	3.41	3.16	3.80	2.77	1.93			
155	1.45	1.60	3.05	3.68	2.54	3.61	3.04	1.76	1.42	1.73	2.41	3.61	3.38	3.91	2.98	2.16			
160	1.65	2.76	3.58	4.95	3.06	4.11	3.41	2.14	1.50	1.80	2.49	3.81	3.59	4.02	3.41	2.36			
165	2.06	3.16	4.51	5.37	3.89	5.17	4.37	3.13	2.60	2.67	3.47	4.84	5.49	4.32	5.21	3.87			
170	3.13	3.51	4.87	6.34	4.44	5.59	4.59	3.53	3.25	3.20	3.50	5.11	6.55	4.71	6.04	4.84			
175	3.53	3.44	5.00	6.40	4.65	5.70	4.73	3.61	3.50	3.51	3.41	5.07	6.69	4.66	5.89	4.91			
180	3.57	3.41	5.05	6.42	4.65	5.70	4.79	3.65	3.57	3.51	3.37	5.05	6.44	4.64	5.75	4.83			



<b>3. Test Equipment</b>
--------------------------

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 \*\*\*\*\***