

# IES LM-79-08

## MEASUREMENT AND TEST REPORT

For

### GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL, Hong Kong

**Test Model: LEM9027KDIM120VMD/ADR4BL**

|                       |  |
|-----------------------|--|
| <b>Report Type:</b>   | Electrical and Photometric tests including: Luminous Flux, Chromaticity, Luminous Intensity Distribution   |
| <b>Test Engineer:</b> | Joker Gu   |
| <b>Report Number:</b> | RKSB200812010-10-2   |
| <b>Test Date:</b>     | 2020-08-27   |
| <b>Report Date:</b>   | 2020-09-07   |
| <b>Reviewed By:</b>   | Seven Xia/EE Engineer  |
| <b>Prepared By:</b>   | Bay Area Compliance Laboratories Corp. (Kunshan).<br>No.248 Chenghu Road, Kunshan,<br>Jiangsu province, China.<br>Tel: +86-0512-86175000<br>Fax: +86-0512-88934268 |
| <b>Accreditation:</b> | The IAS Accreditation Number TL-749.   |

## 1. Product Description

### General Information:

One sample was received on 2020-08-12 and used for testing.

Model Tested: LEM9027KDIM120VMD/ADR4BL  
Manufacturer: GREEN CREATIVE LTD  
Brand Name: GREEN CREATIVE  
Product Designation: LED Recessed Downlight  
Burning Time Before Test: 0hour(For New Products)

### Rated Values:

Rated Voltage/Frequency: 120VAC 60Hz  
Rated Power: 31.5W  
Nominal CCT: 2700K  
Nominal Lumen Output: 2060lm

## 2. Standards Used

- IES LM-79-08: Approved Method: Electrical & Photometric Measurement of Solid-state Lighting Products

## 3. Description of Test Equipment

| Device                   | Manufacture | Model No | Serial No   | Calibration date | Calibration due date |
|--------------------------|-------------|----------|-------------|------------------|----------------------|
| AC Power Supply          | INVENTFINE  | CHP-5KVA | 900511765   | 2020-04-02       | 2021-04-01           |
| DC Power Supply          | INVENTFINE  | WL3010   | JWDMP030001 | 2019-12-20       | 2020-12-19           |
| Power Meter              | INVENTFINE  | WT500    | GSDSQ200007 | 2020-04-02       | 2021-04-01           |
| Goniophotometer          | INVENTFINE  | GPM-1900 | YWGCF120001 | 2020-01-22       | 2021-01-21           |
| Wireless Weather Station | ZHONGXING   | KG218    | N/A         | 2019-12-02       | 2020-12-01           |
| Standard Light Source    | INVENTFINE  | N/A      | JWBYR040008 | 2020-03-19       | 2021-03-18           |

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Kunshan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

## 4. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-08. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$  during measurement. And relative humidity is less than 65%.

### Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. The vertical angle ( $\gamma$ ) test intervals were set no more than 1 degree while data for 5 degree intervals is reported. The horizontal angle (C plane) test intervals were set no more than 22.5 degree.

The uncertainty of the luminous flux is  $U_{re}=2.6\%$  ( $k=2$ ), at the 95% confidence level.

## 5. Test Result

### [Goniophotometer System]

Total operating time for luminous intensity distribution: **1.0hour**

Test orientation: **Downward**

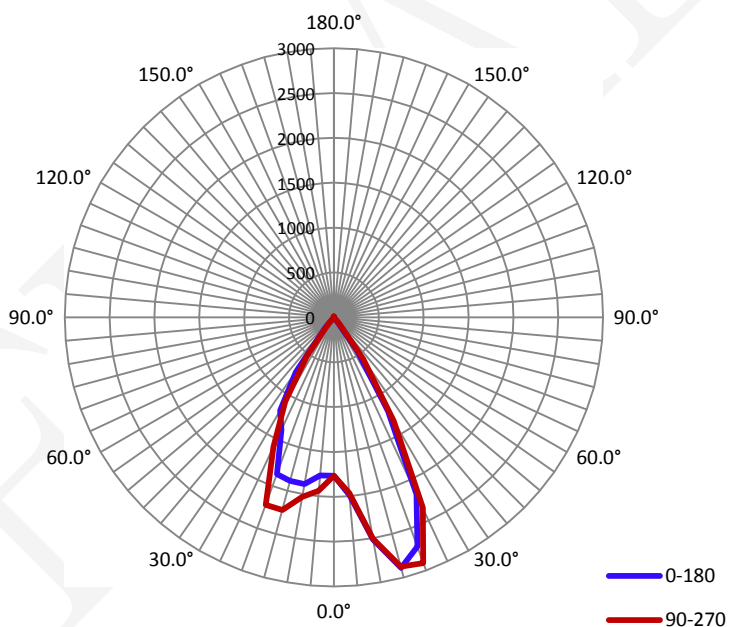
### Electrical Measurement

| Input Voltage(V) | Frequency(Hz) | Input Current(A) | Power (W) | Power Factor |
|------------------|---------------|------------------|-----------|--------------|
| 120.0            | 60            | 0.2650           | 31.56     | 0.9920       |

### Photometric Measurement

| Luminous Flux(lm) | Efficacy(lm/W) | I <sub>max</sub> (cd) | S/MH(C0/180) | S/MH(C90/270) |
|-------------------|----------------|-----------------------|--------------|---------------|
| 2119.9            | 67.22          | 2958.6                | 1.11         | 1.12          |

### Luminous Intensity Distribution



|                                    | C0/180 | C45/225 | C90/270 | C135/315 | AVG. |
|------------------------------------|--------|---------|---------|----------|------|
| Beam Angle(50%I <sub>max</sub> ):  | 53.1   | 51.7    | 55.7    | 58.0     | 54.6 |
| Field Angle(10%I <sub>max</sub> ): | 75.9   | 76.0    | 75.6    | 76.3     | 76.0 |

**Luminous Intensity (cd) Distribution Data**

| C<br>y | 0°   | 22.5° | 45°  | 67.5° | 90°  | 112.5° | 135° | 157.5° |
|--------|------|-------|------|-------|------|--------|------|--------|
| 0.0°   | 1764 | 1764  | 1764 | 1764  | 1764 | 1764   | 1764 | 1764   |
| 5.0°   | 1990 | 1981  | 1976 | 1981  | 1967 | 1936   | 1898 | 1857   |
| 10.0°  | 2512 | 2542  | 2537 | 2516  | 2504 | 2399   | 2297 | 2160   |
| 15.0°  | 2890 | 2925  | 2959 | 2915  | 2875 | 2754   | 2495 | 2159   |
| 20.0°  | 2717 | 2746  | 2804 | 2867  | 2914 | 2808   | 2574 | 2222   |
| 25.0°  | 2176 | 2174  | 2262 | 2308  | 2343 | 2214   | 2083 | 1847   |
| 30.0°  | 1206 | 1231  | 1298 | 1333  | 1336 | 1276   | 1298 | 1311   |
| 35.0°  | 456  | 480   | 531  | 540   | 570  | 652    | 717  | 783    |
| 40.0°  | 59   | 60    | 66   | 68    | 95   | 138    | 139  | 120    |
| 45.0°  | 8    | 8     | 8    | 8     | 8    | 8      | 8    | 8      |
| 50.0°  | 2    | 2     | 3    | 3     | 3    | 3      | 3    | 3      |
| 55.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 60.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 65.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 70.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 75.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 80.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 85.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 90.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 95.0°  | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 100.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 105.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 110.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 115.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 120.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 125.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 130.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 135.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 140.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |
| 145.0° | 0    | 0     | 0    | 0     | 0    | 0      | 1    | 1      |
| 150.0° | 0    | 1     | 1    | 2     | 2    | 2      | 3    | 3      |
| 155.0° | 3    | 2     | 3    | 3     | 3    | 4      | 4    | 4      |
| 160.0° | 4    | 4     | 4    | 4     | 5    | 5      | 5    | 5      |
| 165.0° | 5    | 5     | 5    | 5     | 5    | 6      | 6    | 6      |
| 170.0° | 6    | 6     | 6    | 7     | 7    | 7      | 7    | 7      |
| 175.0° | 8    | 8     | 8    | 8     | 8    | 9      | 9    | 9      |
| 180.0° | 0    | 0     | 0    | 0     | 0    | 0      | 0    | 0      |

Luminous Intensity (cd) Distribution Data (cont.)

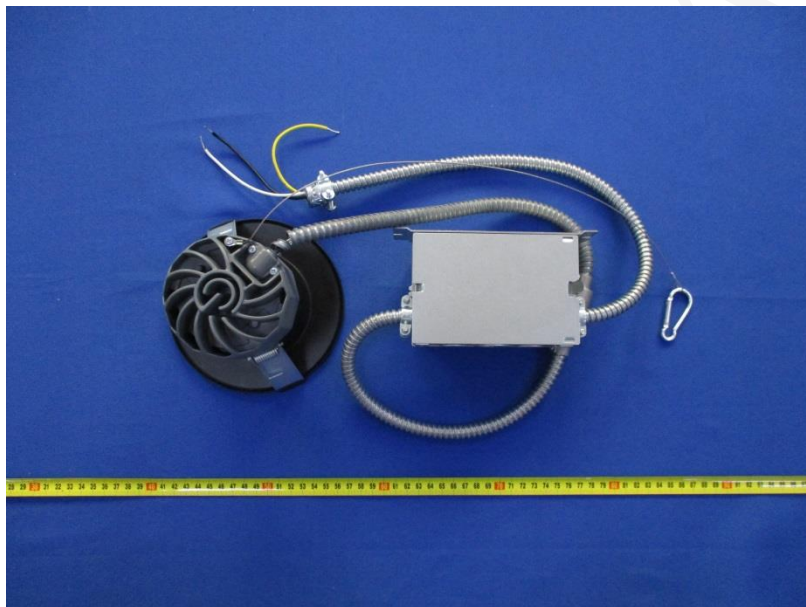
| C<br>y | 180° | 202.5° | 225° | 247.5° | 270° | 292.5° | 315° | 337.5° |
|--------|------|--------|------|--------|------|--------|------|--------|
| 0.0°   | 1764 | 1764   | 1764 | 1764   | 1764 | 1764   | 1764 | 1764   |
| 5.0°   | 1767 | 1775   | 1815 | 1894   | 1942 | 1981   | 2033 | 2045   |
| 10.0°  | 1888 | 1797   | 1788 | 1877   | 2033 | 2200   | 2327 | 2419   |
| 15.0°  | 1885 | 1775   | 1747 | 1923   | 2223 | 2506   | 2699 | 2796   |
| 20.0°  | 1858 | 1696   | 1731 | 1939   | 2223 | 2430   | 2592 | 2732   |
| 25.0°  | 1384 | 1228   | 1257 | 1382   | 1594 | 1745   | 1893 | 1937   |
| 30.0°  | 1199 | 1167   | 1163 | 1124   | 1085 | 1098   | 1078 | 1113   |
| 35.0°  | 743  | 732    | 675  | 596    | 521  | 497    | 465  | 440    |
| 40.0°  | 147  | 154    | 128  | 103    | 95   | 69     | 60   | 59     |
| 45.0°  | 6    | 7      | 8    | 8      | 9    | 8      | 8    | 9      |
| 50.0°  | 2    | 2      | 3    | 3      | 3    | 3      | 3    | 3      |
| 55.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 60.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 65.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 70.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 75.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 80.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 85.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 90.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 95.0°  | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 100.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 105.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 110.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 115.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 120.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 125.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 130.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 135.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 140.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |
| 145.0° | 0    | 0      | 1    | 1      | 1    | 2      | 2    | 0      |
| 150.0° | 1    | 2      | 2    | 2      | 3    | 2      | 2    | 2      |
| 155.0° | 3    | 4      | 4    | 4      | 4    | 3      | 3    | 3      |
| 160.0° | 5    | 5      | 6    | 5      | 5    | 5      | 5    | 4      |
| 165.0° | 5    | 6      | 6    | 6      | 7    | 6      | 6    | 6      |
| 170.0° | 7    | 7      | 8    | 8      | 7    | 8      | 7    | 8      |
| 175.0° | 8    | 8      | 8    | 9      | 9    | 9      | 9    | 9      |
| 180.0° | 0    | 0      | 0    | 0      | 0    | 0      | 0    | 0      |

**Zonal Lumen Density Measurement**

| Deg     | Flux (lm) | %     |
|---------|-----------|-------|
| 0-5     | 44.1      | 2.08  |
| 5-10    | 149.0     | 7.03  |
| 10-15   | 279.2     | 13.17 |
| 15-20   | 403.7     | 19.04 |
| 20-25   | 450.2     | 21.24 |
| 25-30   | 388.7     | 18.33 |
| 30-35   | 264.2     | 12.46 |
| 35-40   | 114.2     | 5.39  |
| 40-45   | 19.5      | 0.92  |
| 45-50   | 2.2       | 0.10  |
| 50-55   | 0.6       | 0.03  |
| 55-60   | 0.0       | 0.00  |
| 60-65   | 0.0       | 0.00  |
| 65-70   | 0.0       | 0.00  |
| 70-75   | 0.0       | 0.00  |
| 75-80   | 0.0       | 0.00  |
| 80-85   | 0.0       | 0.00  |
| 85-90   | 0.0       | 0.00  |
| 90-95   | 0.0       | 0.00  |
| 95-100  | 0.0       | 0.00  |
| 100-105 | 0.0       | 0.00  |
| 105-110 | 0.0       | 0.00  |
| 110-115 | 0.0       | 0.00  |
| 115-120 | 0.0       | 0.00  |
| 120-125 | 0.0       | 0.00  |
| 125-130 | 0.0       | 0.00  |
| 130-135 | 0.0       | 0.00  |
| 135-140 | 0.0       | 0.00  |
| 140-145 | 0.1       | 0.00  |
| 145-150 | 0.4       | 0.02  |
| 150-155 | 0.7       | 0.03  |
| 155-160 | 0.9       | 0.04  |
| 160-165 | 0.9       | 0.04  |
| 165-170 | 0.8       | 0.04  |
| 170-175 | 0.6       | 0.03  |
| 175-180 | 0.1       | 0.00  |

| Deg   | Flux (lm) | %      |
|-------|-----------|--------|
| 0-5   | 44.1      | 2.08   |
| 0-10  | 193.1     | 9.11   |
| 0-15  | 472.4     | 22.28  |
| 0-20  | 876.1     | 41.33  |
| 0-25  | 1326.3    | 62.56  |
| 0-30  | 1714.9    | 80.90  |
| 0-35  | 1979.2    | 93.36  |
| 0-40  | 2093.4    | 98.75  |
| 0-45  | 2112.9    | 99.67  |
| 0-50  | 2115.0    | 99.77  |
| 0-55  | 2115.6    | 99.80  |
| 0-60  | 2115.6    | 99.80  |
| 0-65  | 2115.6    | 99.80  |
| 0-70  | 2115.6    | 99.80  |
| 0-75  | 2115.6    | 99.80  |
| 0-80  | 2115.6    | 99.80  |
| 0-85  | 2115.6    | 99.80  |
| 0-90  | 2115.6    | 99.80  |
| 0-95  | 2115.6    | 99.80  |
| 0-100 | 2115.6    | 99.80  |
| 0-105 | 2115.6    | 99.80  |
| 0-110 | 2115.6    | 99.80  |
| 0-115 | 2115.6    | 99.80  |
| 0-120 | 2115.6    | 99.80  |
| 0-125 | 2115.6    | 99.80  |
| 0-130 | 2115.6    | 99.80  |
| 0-135 | 2115.6    | 99.80  |
| 0-140 | 2115.6    | 99.80  |
| 0-145 | 2115.7    | 99.80  |
| 0-150 | 2116.1    | 99.82  |
| 0-155 | 2116.8    | 99.85  |
| 0-160 | 2117.6    | 99.89  |
| 0-165 | 2118.5    | 99.93  |
| 0-170 | 2119.2    | 99.97  |
| 0-175 | 2119.8    | 100.00 |
| 0-180 | 2119.9    | 100.00 |

## 6. Product Photo





## Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
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