



RoHS PARTS

# 请 承 认 书

SPECIFICATION FOR APPROVAL

CUSTOMER :

PROGRAM NO. : LED-00-108V-0.250A-001-R1-V1

ISSUE DATE: 2020.6.1

| VERSION                              | Details  |
|--------------------------------------|--|
| V0                                   | Initiated  |
| V1                                   | Add LED supplier BMTC and Update the description |
| <b>DESIGNED BY</b>                   | <b>CHECKED BY</b>                                |
| SK                                   |  |
| <b>CUSTOMER APPROVED SIGNATURE :</b> |  |
| <b>APPROVED DATE:</b>                |  |

## FERRICS TECHNOLOGY CO., LIMITED

**Add:**

17F, Handing Mansion( North Tower ), 5# Yongfuqiao Rd., Hangzhou, 310000, Zhejiang, China.

10F, QianJiang Mansion, 178# Qianjiang Rd.(W), Haining, 314400, Zhejiang, China

Tel: +86-573-87832359

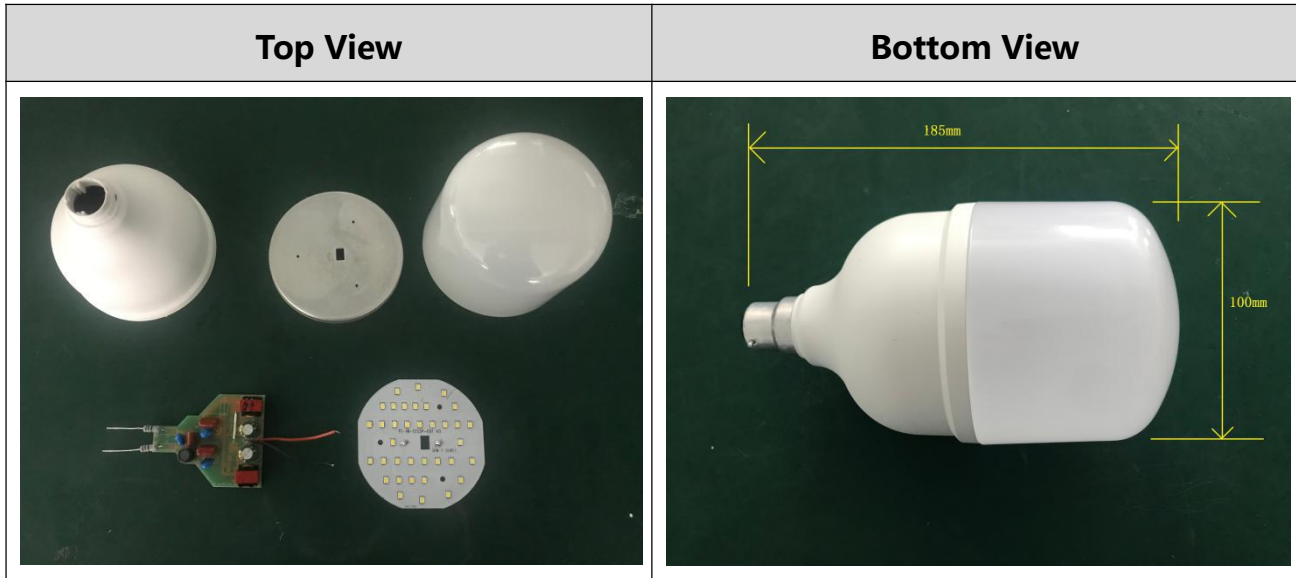
Fax: +86-573-80700736

<http://www.ferrics.com>

Email: [sales@ferrics.com](mailto:sales@ferrics.com)

# LED-00-108V-0.250A-001-R1-V1

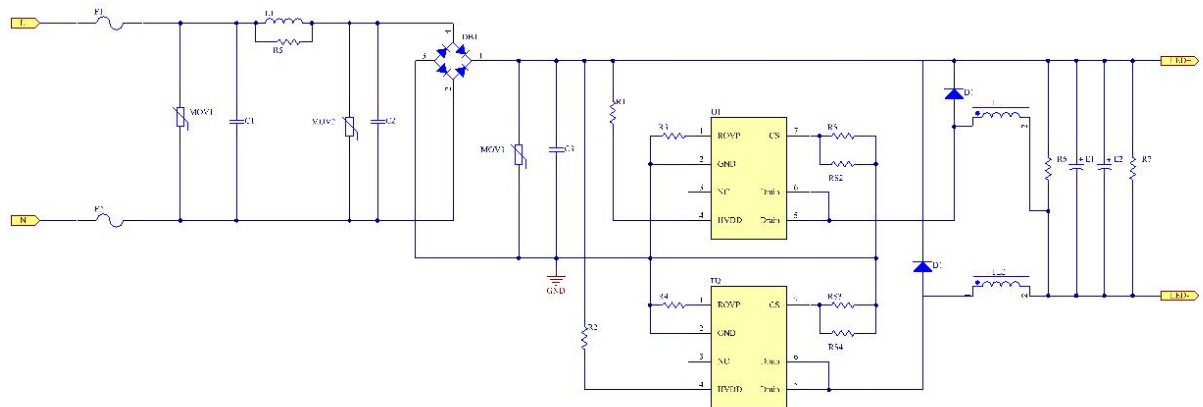
## 1. Photograph



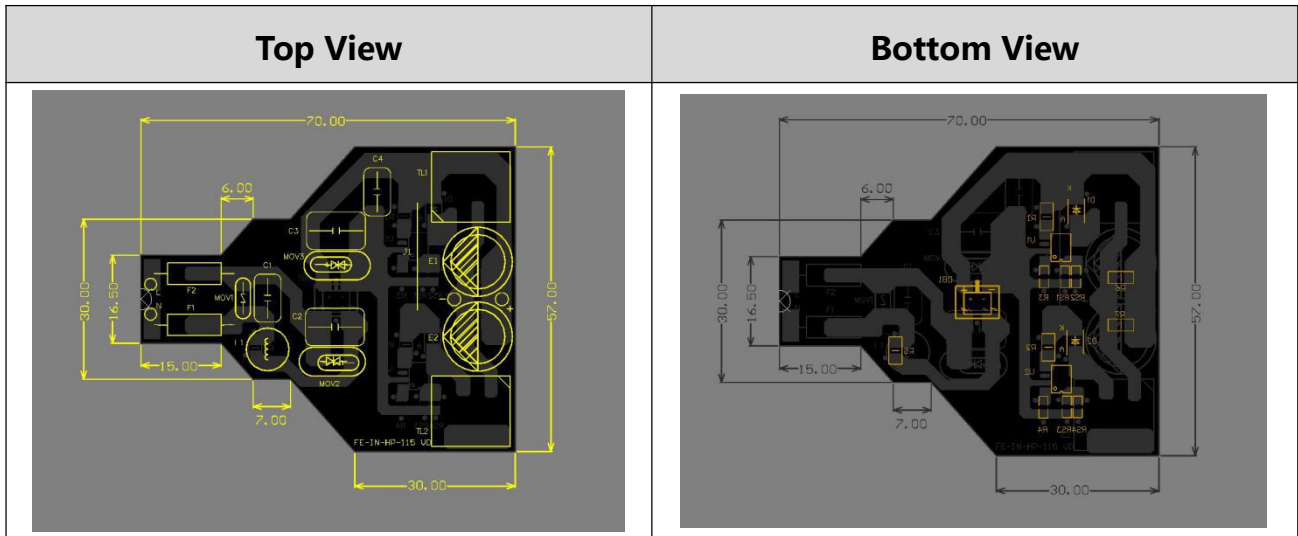
## 2. Input & Output Parameters

|                     | Min | Normal | Max     |
|---------------------|-----|--------|---------|
| Input Voltage(Vac)  | 200 | 230    | 420-440 |
| Input Power(W)      |     | 29.24  |         |
| Output Voltage(Vdc) |     | 108    |         |
| Output Current(mA)  |     | 250    |         |
| Efficiency          |     | 93%    |         |
| Surge               |     |        | 4KV     |

### 3. Schematic diagram



### 4. PCB layout



## 5. Test Reports

### 1) No load Output Voltage

| AC input Voltage (Vac) | 200V | 230V | 260V | 300V | 360V | 400V | 440V |
|------------------------|------|------|------|------|------|------|------|
| Output voltage(Vdc)    | 126  | 129  | 130  | 132  | 133  | 135  | 135  |

### 2) General Test

Input : AC input voltage is 200Vac,230Vac,260Vac,300Vac,360Vac,400Vac,440Vac.

Load condition: CV 108Vdc.

| Input Voltage | Load         | Input Power (W) | PF    | THD | Output Current (mA) | Eff (%) |
|---------------|--------------|-----------------|-------|-----|---------------------|---------|
| 200Vac        | CV<br>108Vdc | 28.84           | 0.967 |     | 250                 | 93.6    |
| 230Vac        |              | 29.24           | 0.966 | 17  | 252                 | 93      |
| 260Vac        |              | 29.53           | 0.955 |     | 253                 | 92.52   |
| 300Vac        |              | 30.05           | 0.935 |     | 256                 | 92      |
| 360Vac        |              | 26.78           | 0.891 |     | 228                 | 91.94   |
| 400Vac        |              | 21.52           | 0.797 |     | 181                 | 90.83   |
| 440Vac        |              | 16.22           | 0.659 |     | 127                 | 84.56   |

### 3) Short-Circuit Test

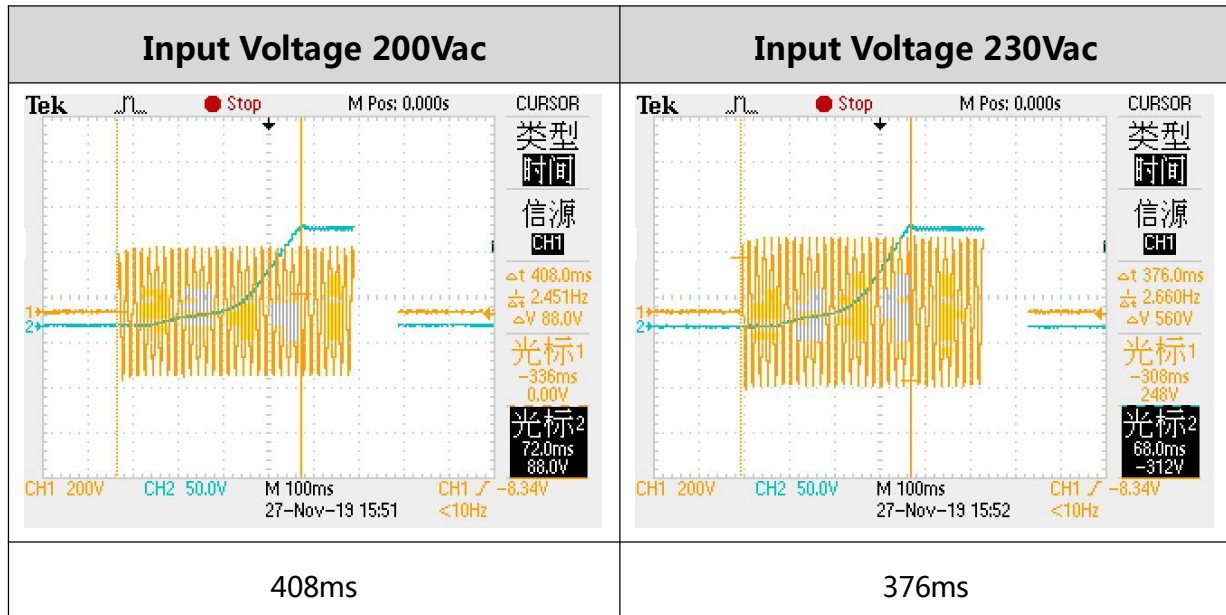
Input: AC200~440V; Output: short.

Test result: No components damaged, the demo board should be working when the short-circuit is removed.

| AC input Voltage(Vac) | 200V | 230V | 260V | 300V | 360V | 400V | 440V |
|-----------------------|------|------|------|------|------|------|------|
| Input Power (W)       | 0.38 | 0.48 | 0.6  | 0.81 | 1.27 | 1.57 | 2.54 |

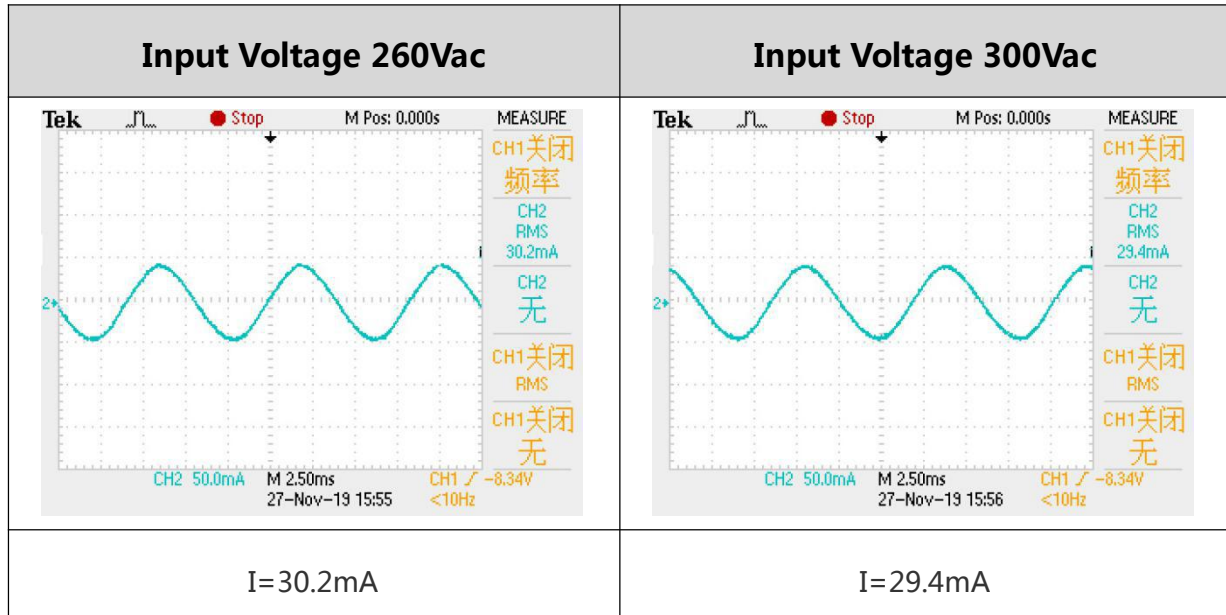
### 4) Start-up Time

Load condition: Full led load.



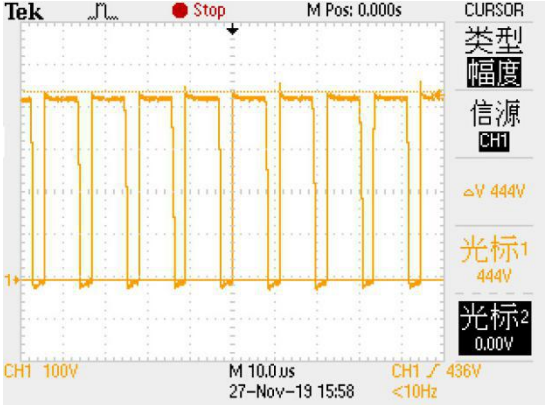
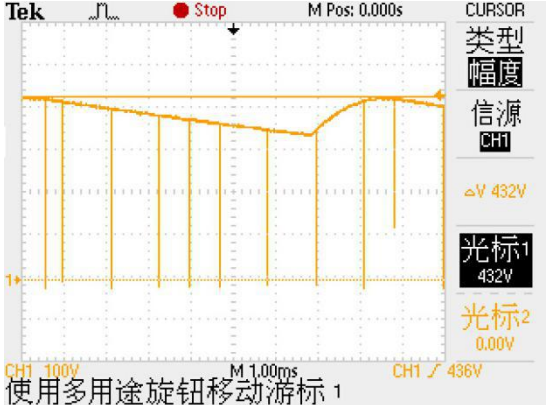
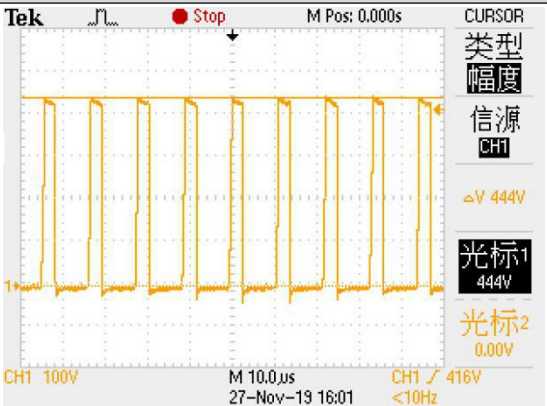
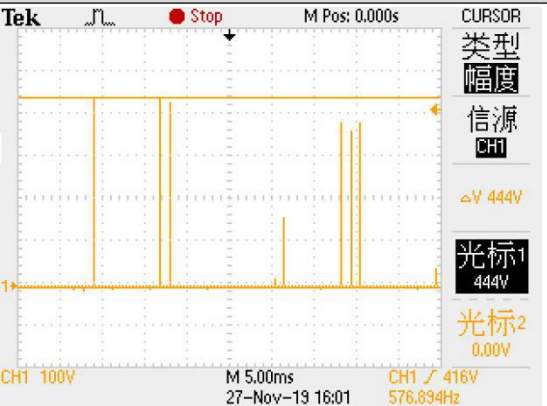
### 5) Ripple current Test (RMS)

Load condition: Full led load.



### 6) Mosfet and DIODE Voltage Stress Test

Input voltage: 300Vac, Load condition: full led load/short

| <b>MOSFET Voltage<br/>300Vac,full load</b>   | <b>MOSFET Voltage<br/>300Vac,short</b>   |
|--|--|
|  <p>Cursor: 类型 幅度 信源 CH1<br/>光标1: 444V<br/>光标2: 0.00V<br/>M 10.0us<br/>CH1 100V<br/>CH1 / 436V<br/>27-Nov-19 15:58<br/>&lt;10Hz</p>   |  <p>Cursor: 类型 幅度 信源 CH1<br/>光标1: 432V<br/>光标2: 0.00V<br/>M 1.00ms<br/>CH1 100V<br/>CH1 / 436V<br/>27-Nov-19 15:58<br/>使用多用途旋钮移动光标 1</p> |
| <p><math>\Delta V=444V</math></p>  | <p><math>\Delta V=432V</math></p>  |
| <b>Diode Voltage<br/>300Vac,full load</b>  | <b>Diode Voltage<br/>300Vac,short</b>  |
|  <p>Cursor: 类型 幅度 信源 CH1<br/>光标1: 444V<br/>光标2: 0.00V<br/>M 10.0us<br/>CH1 100V<br/>CH1 / 416V<br/>27-Nov-19 16:01<br/>&lt;10Hz</p> |  <p>Cursor: 类型 幅度 信源 CH1<br/>光标1: 444V<br/>光标2: 0.00V<br/>M 5.00ms<br/>CH1 100V<br/>CH1 / 416V<br/>27-Nov-19 16:01<br/>576.894Hz</p>   |
| <p><math>\Delta V=444V</math></p>  | <p><math>\Delta V=444V</math></p>  |

## 7) Temperature Test

Case Closed, No wind environmental test. Vin:200Vac/230Vac/300Vac

Full led load.

| Position            | 200Vac | 230Vac | 300Vac |
|---------------------|--------|--------|--------|
| U1                  | 100.6  | 101.2  | 108.8  |
| U2                  | 100.6  | 102.2  | 109.8  |
| D1                  | 97.6   | 100.2  | 108.8  |
| D2                  | 99.6   | 101.2  | 109.8  |
| DB1                 | 99.6   | 85.2   | 86.8   |
| Winding1            | 88.6   | 95.2   | 100.8  |
| CORE1               | 95.6   | 96.2   | 102.8  |
| Winding2            | 95.6   | 97.2   | 106.8  |
| CORE2               | 99.6   | 99.2   | 106.8  |
| E1                  | 93.6   | 99.2   | 98.8   |
| E2                  | 93.6   | 94.2   | 98.8   |
| L1                  | 71.6   | 69.2   | 68.8   |
| F1                  | 65     | 54     | 50     |
| LED-                | 95.6   | 94.2   | 97.8   |
| Shell               | 83.6   | 83.2   | 84.8   |
| Ambient temperature | 25°C   |        |        |

## 8) 4kV Surge Testing

The test conditions: 230Vac, 4kV, 30s.

| Angel | Positive or Negative | times | Pass/Fail |
|-------|----------------------|-------|-----------|
| 0     | +                    | 5     | Pass      |
| 0     | -                    | 5     | Pass      |
| 90    | +                    | 5     | Pass      |
| 90    | -                    | 5     | Pass      |
| 180   | +                    | 5     | Pass      |
| 180   | -                    | 5     | Pass      |
| 270   | +                    | 5     | Pass      |
| 270   | -                    | 5     | Pass      |



## 9) EMI Testing

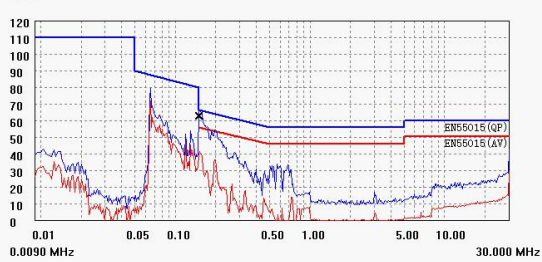
### 230Vac-L

#### EMI TEST REPORT

|                 |                             |                        |           |
|-----------------|-----------------------------|------------------------|-----------|
| Organization:   | Operator:                   | EUT:                   | parameter |
| Place:          | Time: 2009/8/20/15:47       | Test equipment: KH3932 |           |
| Detector: PK+AV | Test-time(ms): 30           | SN: 1632571            |           |
| Limit: EN55015  | Transductor(PK/AV): PK / AV | JZ: 2,14,1252          |           |
| Remark:         |                             |                        |           |

|            |          |           |           |
|------------|----------|-----------|-----------|
| Start(MHz) | End(MHz) | Step(MHz) | freq_step |
| 0.009      | 0.150    | 0.001     |           |
| 0.150      | 2.000    | 0.002     |           |
| 2.000      | 10.000   | 0.010     |           |
| 10.000     | 30.000   | 0.025     |           |

scan result



|            |           |           |           |                    |
|------------|-----------|-----------|-----------|--------------------|
| final test |           |           |           |                    |
| [QP]       | freq(MHz) | lev(dBuV) | Lim(dBuV) | $\Delta$ (lev-Lim) |
|            | 0.150     | 62.5      | 66.0      | -3.5               |

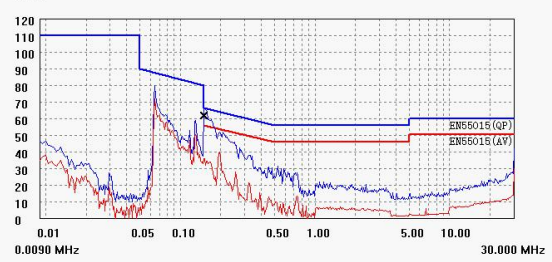
### 230Vac-N

#### EMI TEST REPORT

|                 |                             |                        |           |
|-----------------|-----------------------------|------------------------|-----------|
| Organization:   | Operator:                   | EUT:                   | parameter |
| Place:          | Time: 2009/8/20/16:2        | Test equipment: KH3932 |           |
| Detector: PK+AV | Test-time(ms): 30           | SN: 1632571            |           |
| Limit: EN55015  | Transductor(PK/AV): PK / AV | JZ: 2,14,1232          |           |
| Remark:         |                             |                        |           |

|            |          |           |           |
|------------|----------|-----------|-----------|
| Start(MHz) | End(MHz) | Step(MHz) | freq_step |
| 0.009      | 0.150    | 0.001     |           |
| 0.150      | 2.000    | 0.002     |           |
| 2.000      | 10.000   | 0.010     |           |
| 10.000     | 30.000   | 0.025     |           |

scan result



|            |           |           |           |                    |
|------------|-----------|-----------|-----------|--------------------|
| final test |           |           |           |                    |
| [QP]       | freq(MHz) | lev(dBuV) | Lim(dBuV) | $\Delta$ (lev-Lim) |
|            | 0.150     | 61.9      | 66.0      | -4.1               |

**10) Lumen Testing**

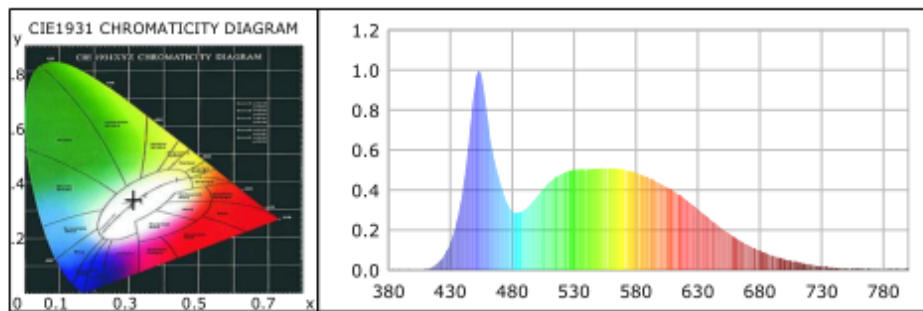
**Lightsource Test Report**

**Product Information**

Product Number: 93506

**CIE Colorimetric Parameters**

Chromaticity coordinates:  $x=0.3129$   $y=0.3376$   $u(u')=0.1948$   $v=0.3153$   $v'=0.4729$   
 CCT:  $T_c=6434K$  ( $duv=0.00745$ ) Color Ratio: R=0.132 G=0.810 B=0.058  
 Peak Wavelength: 453.1nm Half Bandwidth: 25.3nm  
 Dominant Wavelength: 494.4nm Color Purity: 0.066  
 CRI: Ra= 83.5 TM30: Rf= 82, Rg= 93  
 R1 =81 R2 =88 R3 =93 R4 =81 R5 =81 R6 =84 R7 =89 R8 =70  
 R9 =8 R10=72 R11=80 R12=58 R13=83 R14=96 R15=76  
 Color Quality Scale: Qa= 82.7, Qf= 82.9, Qp= 81.8, Qg= 90.4  
 Q1 =83 Q2 =98 Q3 =81 Q4 =75 Q5 =79 Q6 =81 Q7 =85 Q8 =90  
 Q9 =97 Q10=89 Q11=86 Q12=85 Q13=84 Q14=72 Q15=77



**Photometric Parameters**

Luminous Flux: 3336.83 lm Efficiency: 118.03 lm/W Radiant Power: 10.713 W  
 EEI: 0.12 Energy Efficiency Class: A+ (EU 874-2012)

**Electric Parameters**

Voltage: 230.70V Current: 0.1260A Power: 28.27W  
 Power Factor: 0.9740 Frequency: 50.00Hz

**Test Information**

Scan Range: 380~800:1nm Photometric Method: sphere-spectroradiometer  
 Stabilization Time: 3 0 min Photometric Condition: Sphere diameter: 1.75m, 4π  
 Max of Signal: 45753 (3358) CCD Integration Time: 246.72 ms