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## Photometric Test Report

### Relevant Standards

IES LM-79-2008, ANSI C82.77-2002, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2015, IES TM-30-2015

### Prepared For

#### **Cree, Inc**

4600 Silicon Dr  
Durham, NC 27703-8475  
United States

### Catalog Number

**RSWM-A-HT-2LG-9L-30K7-UL-xxxxx**

Order Number

**11683107**

Test Number

**11683107.08**

Test Date

2017-03-23

Prepared By

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Approved By

Edward Bush, Project Handler

The results contained in this report pertain only to the tested sample.  
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Laboratory results may not be representative of field performance  
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the  $4\pi$  geometry method.

Absorption correction was employed for Sphere measurement

Tested in 30 planes left side, 30 planes right side, left and right averaged

Vertical test increments are 2.5 degrees

Test distance exceeds five times the greatest luminous opening of luminaire



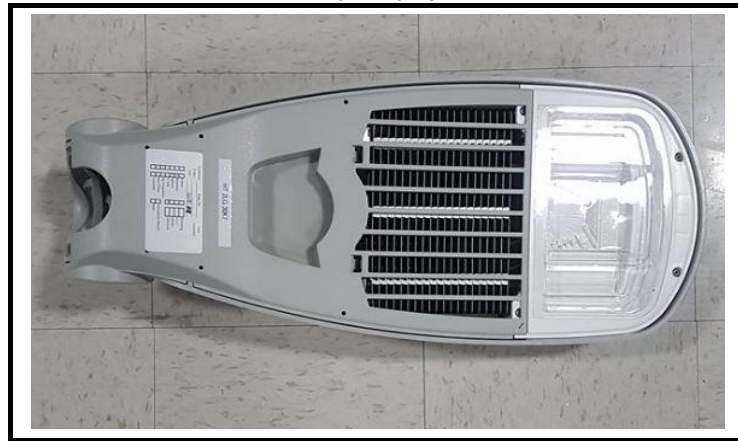
**Luminaire Description:** Formed BMC housing, clear acrylic lens, white plastic reflector

**Lamp:** 24 white LEDs

**Mounting:** Pole/Arm

**Ballast/Driver:** LEA02609X0001

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 5.50 in.  
Luminous Width: 9.000 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 9149 Lumens  
Efficacy: 110.8 lm/w  
CCT: 2975 K  
CRI (Ra): 70.9

**Distribution**

Roadway Classification:  
Cutoff Classification:  
BUG Rating:

Type II, Short  
Full Cutoff  
B2 U0 G2

**Electrical Data at 277 VAC**

Test Temperature: 25.5 °C  
Voltage: 277.1 VAC  
Current: 0.3176 A  
Power: 81.98 W  
Power Factor: 0.930  
Frequency: 60 Hz  
Current THD: 10.9 %



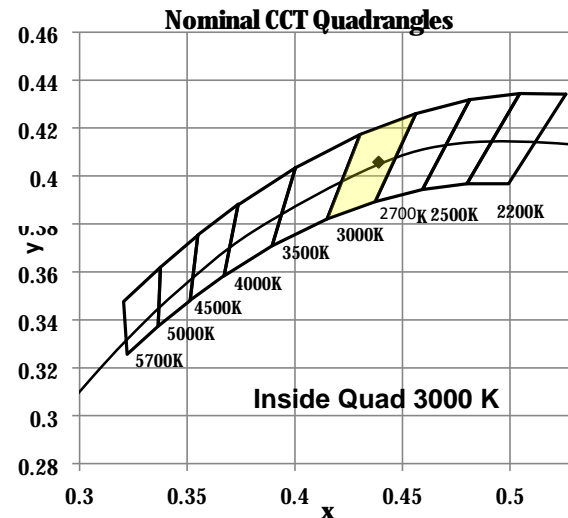
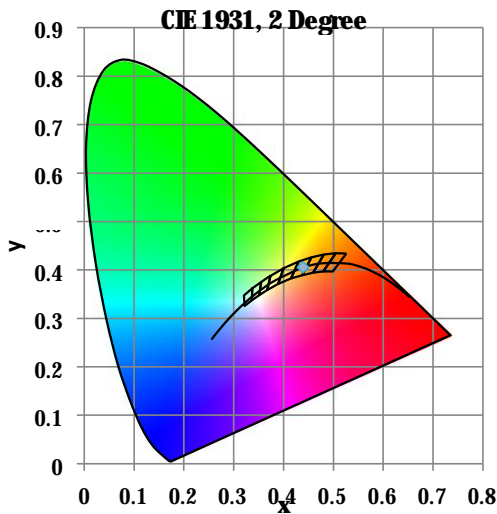
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

| Temperature | Voltage   | Current  | Power   | Power | Frequency | Current THD |
|-------------|-----------|----------|---------|-------|-----------|-------------|
| 24.9 °C     | 120.0 VAC | 0.6918 A | 82.56 W | 0.995 | 60 Hz     | 3.70 %      |

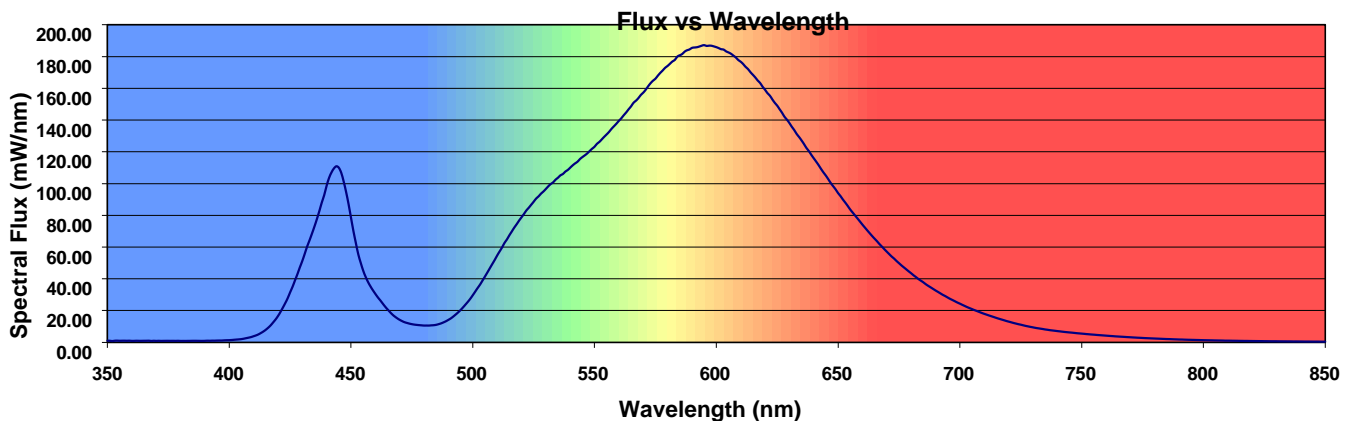
### Summary of Results

|                             |             |                             |        |
|-----------------------------|-------------|-----------------------------|--------|
| <b>Total Output:</b>        | 9149 Lumens | <b>Chromaticity (x):</b>    | 0.4391 |
| <b>Efficacy:</b>            | 110.8 lm/w  | <b>Chromaticity (y):</b>    | 0.4057 |
| <b>CCT:</b>                 | 2975 K      | <b>Chromaticity (u'):</b>   | 0.2513 |
| <b>CRI (Ra):</b>            | 70.9        | <b>Chromaticity (v'):</b>   | 0.5223 |
| <b>CRI (R9):</b>            | -28.2       | <b>TM-30 R<sub>r</sub>:</b> | 67.8   |
| <b>Peak Wavelength:</b>     | 595.4 nm    | <b>TM-30 R<sub>g</sub>:</b> | 96.9   |
| <b>Dominant Wavelength:</b> | 582.8 nm    | <b>Duv:</b>                 | 0.0002 |
| <b>S/P Ratio:</b>           | 1.148       |                             |        |



### Color Rendering Index Detail

| Ra (CRI) | R1   | R2   | R3   | R4   | R5   | R6   | R7   | R8   | R9    | R10  | R11  | R12  | R13  | R14  |
|----------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|
| 70.9     | 68.0 | 79.1 | 89.1 | 69.0 | 66.3 | 70.5 | 78.5 | 46.6 | -28.2 | 51.6 | 64.0 | 44.4 | 69.4 | 93.4 |





### Distribution - Goniophotometer

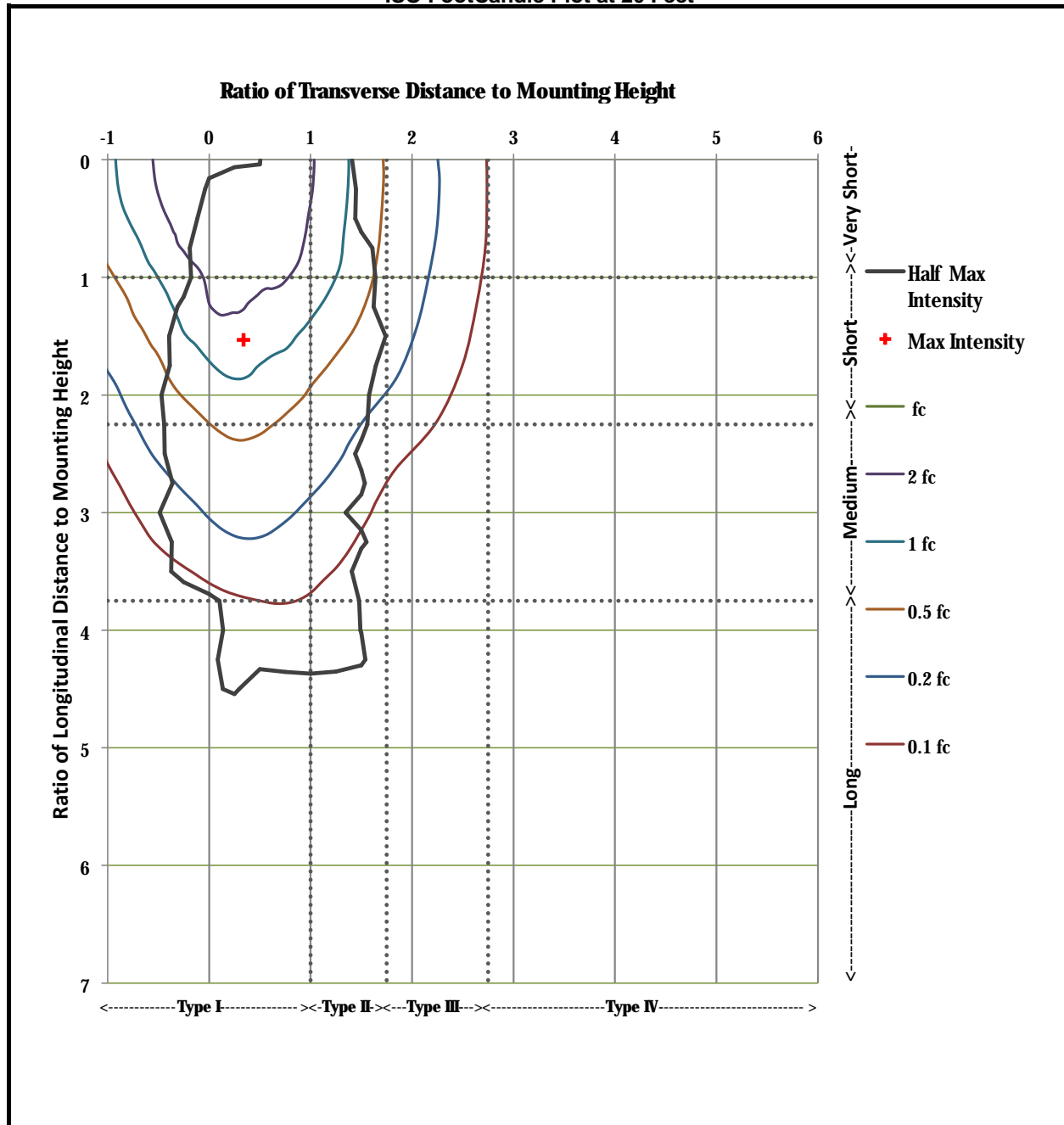
#### Distribution Test Conditions

| Temperature | Voltage   | Current  | Power   | Power | Frequency | Current THD |
|-------------|-----------|----------|---------|-------|-----------|-------------|
| 25.4 °C     | 120.0 VAC | 0.6913 A | 82.58 W | 0.996 | 60 Hz     | 3.29 %      |

#### Summary of Results

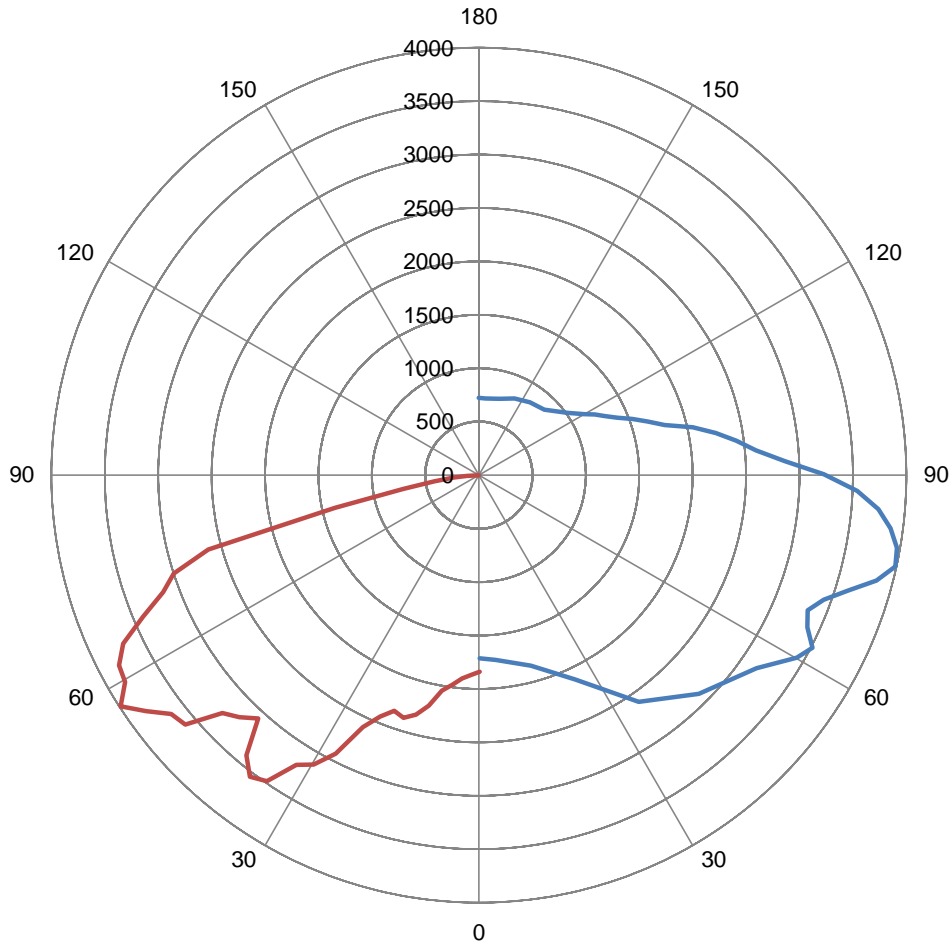
|                             |                |                     |              |
|-----------------------------|----------------|---------------------|--------------|
| IES Roadway Classification: | Type II, Short | Total Lumen Output: | 9284 Lumens  |
| Cutoff Classification:      | Full Cutoff    | Luminaire Efficacy: | 112.4 lm/w   |
| BUG Rating:                 | B2 U0 G2       | Maximum Candela:    | 3990 Candela |

#### ISO FootCandle Plot at 20 Feet





**Maximum Plane and Cone Plots of Candela**



Vertical Plane Through

77.5 ° Lateral

Lateral Cone Through

57.5 ° Vertical

Maximum Intensity (Candlepower):

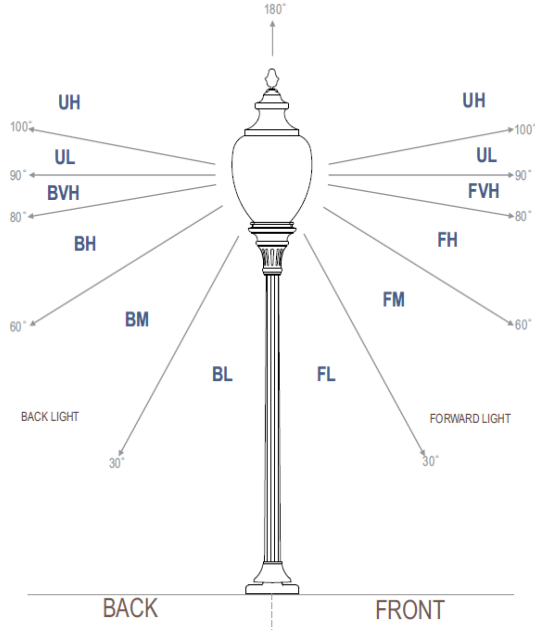
3990 Candela

**Zonal Lumen Summary**

| Zone  | Lumens | % of | Zone    | Lumens | % of | Zone    | Lumens | % of |
|-------|--------|------|---------|--------|------|---------|--------|------|
| 0-5   | 46.4   | 0.5% | 60-65   | 865.8  | 9.3% | 120-125 | 0.0    | 0.0% |
| 5-10  | 130.0  | 1.4% | 65-70   | 764.1  | 8.2% | 125-130 | 0.0    | 0.0% |
| 10-15 | 218.7  | 2.4% | 70-75   | 634.2  | 6.8% | 130-135 | 0.0    | 0.0% |
| 15-20 | 308.1  | 3.3% | 75-80   | 401.1  | 4.3% | 135-140 | 0.0    | 0.0% |
| 20-25 | 388.5  | 4.2% | 80-85   | 186.0  | 2.0% | 140-145 | 0.0    | 0.0% |
| 25-30 | 496.5  | 5.3% | 85-90   | 48.1   | 0.5% | 145-150 | 0.0    | 0.0% |
| 30-35 | 608.2  | 6.6% | 90-95   | 0.0    | 0.0% | 150-155 | 0.0    | 0.0% |
| 35-40 | 720.8  | 7.8% | 95-100  | 0.0    | 0.0% | 155-160 | 0.0    | 0.0% |
| 40-45 | 785.6  | 8.5% | 100-105 | 0.0    | 0.0% | 160-165 | 0.0    | 0.0% |
| 45-50 | 847.5  | 9.1% | 105-110 | 0.0    | 0.0% | 165-170 | 0.0    | 0.0% |
| 50-55 | 912.8  | 9.8% | 110-115 | 0.0    | 0.0% | 170-175 | 0.0    | 0.0% |
| 55-60 | 921.9  | 9.9% | 115-120 | 0.0    | 0.0% | 175-180 | 0.0    | 0.0% |



**IES "BUG" Rating**  
 (Back Light, Uplight, Glare)  
 Per IES TM-15-11



Luminaire Classification System (LCS)

| LCS               | Zone      | Lumens          | Luminaire % |
|-------------------|-----------|-----------------|-------------|
| FL                | (0-30)    | 932.7           | 10.0%       |
| FM                | (30-60)   | 3293.6          | 35.5%       |
| FH                | (60-80)   | 1818.6          | 19.6%       |
| FVH               | (80-90)   | 140.1           | 1.5%        |
| BL                | (0-30)    | 655.5           | 7.1%        |
| BM                | (30-60)   | 1503.3          | 16.2%       |
| BH                | (60-80)   | 846.6           | 9.1%        |
| BVH               | (80-90)   | 94.0            | 1.0%        |
| UL                | (90-100)  | 0.0             | 0.0%        |
| UH                | (100-180) | 0.0             | 0.0%        |
| Total             |           | 9284.4          | 100.0%      |
| <b>BUG Rating</b> |           | <b>B2 U0 G2</b> |             |