



UL LLC
1075 W Lambert Rd Suite B
Brea, CA 92821

Photometric Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002
UL1598-2008

Prepared For
SloanLED
Yalda Esmaeili
5725 Olivas Park Drive
Ventura, CA 93003
United States

Catalog Number
70269-6WSJ1-MB
Order Number
11171545
Test Number
1211807

Test Date

2016-02-25 - 2016-03-01

Prepared By

A handwritten signature in black ink, appearing to read 'Khang Nguyen'.

Khang Nguyen, Technician

Approved By

A handwritten signature in black ink, appearing to read 'Eric M. Gaudreau'.

Eric Gaudreau, Senior Engineering Associate

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 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: White plastic housing with patterned optics
Lamp: Three (3) White LEDs
Mounting: Surface

Luminaire



Luminaire Characteristics

Luminous Length: 2.50 in.
Luminous Width: 0.5000 in.

Summary of Results

Integrating Sphere

Luminous Flux: 124 Lumens
Efficacy: 109.3 lm/w
CCT: 6628 K
CRI (Ra): 83.4

Distribution

Total Luminaire Output: 120.9 Lumens
Luminaire Efficacy: 107.6 lm/w
Maximum Candela: 28 Candela

Electrical Data at 12 VDC

Test Temperature: 24.7 °C
Voltage: 12.09 VDC
Current: 0.09360 A
Power: 1.132 W

In-Situ

LED Temperature: 42.7 °C
Measured LED Current: 0.09350 A

Temperature is offset to an ambient temperature of 25°C as described in UL1598-2008.



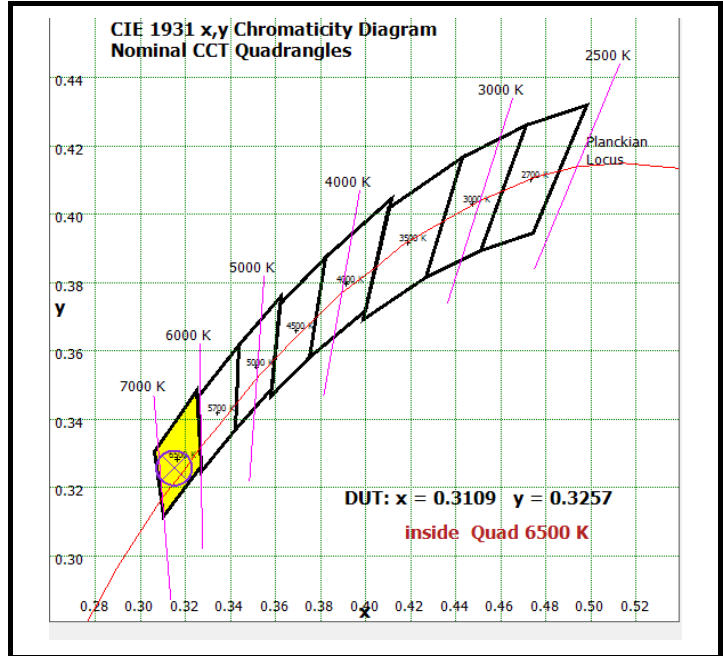
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

| Temperature | Voltage | Current | Power | Power Factor | Frequency | Current THD |
|-------------|-----------|-----------|---------|--------------|-----------|-------------|
| 24.7 °C | 12.09 VDC | 0.09360 A | 1.132 W | N/A | N/A | N/A |

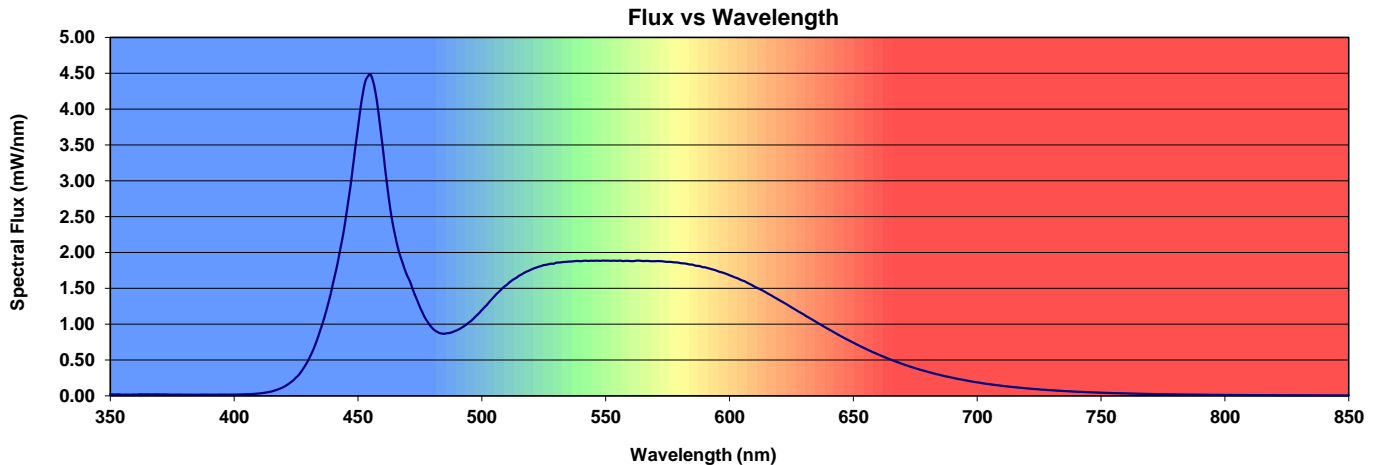
Summary of Results

| | |
|----------------------|------------|
| Total Output: | 124 Lumens |
| Efficacy: | 109.3 lm/w |
| CCT: | 6628 K |
| CRI (Ra): | 83.4 |
| CRI (R9): | 11.2 |
| Chromaticity (x): | 0.3109 |
| Chromaticity (y): | 0.3257 |
| Chromaticity (u): | 0.1978 |
| Chromaticity (v): | 0.3108 |
| Chromaticity (u') | 0.1978 |
| Chromaticity (v') | 0.4663 |
| Duv: | 0.0024 |



Color Rendering Index Detail

| Ra (CRI) | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 83.4 | 82.3 | 88.5 | 90.4 | 82.5 | 81.9 | 82.0 | 88.5 | 71.0 | 11.2 | 70.7 | 81.4 | 54.0 | 84.5 | 95.0 |





Distribution - Goniophotometer

Distribution Test Conditions

| Temperature | Voltage | Current | Power | Power Factor | Frequency | Current THD |
|-------------|-----------|-----------|---------|--------------|-----------|-------------|
| 24.8 °C | 12.01 VDC | 0.09360 A | 1.124 W | N/A | N/A | N/A |

Summary of Results

Spacing Criteria

0-180: 2.67
90-270: 2.67

Total Lumen Output:

120.9 Lumens

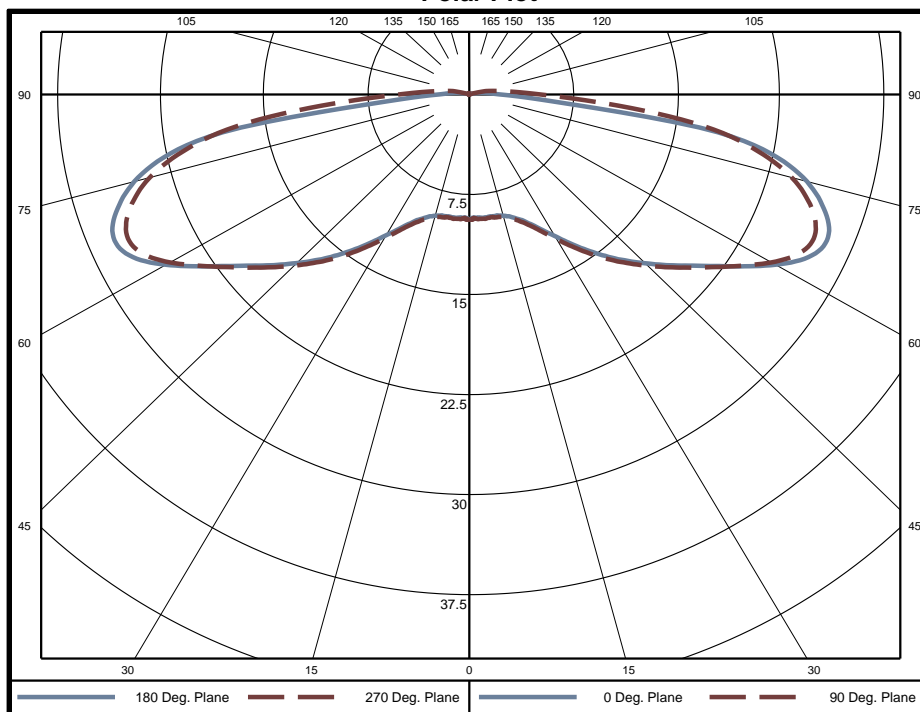
Luminaire Efficacy:

107.6 lm/w

Maximum Candela:

28 Candela

Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5 | 0.22 | 0.2% | 60-65 | 12.98 | 10.7% | 120-125 | 0.03 | 0.0% |
| 5-10 | 0.67 | 0.6% | 65-70 | 14.04 | 11.6% | 125-130 | 0.02 | 0.0% |
| 10-15 | 1.11 | 0.9% | 70-75 | 13.69 | 11.3% | 130-135 | 0.02 | 0.0% |
| 15-20 | 1.59 | 1.3% | 75-80 | 12.19 | 10.1% | 135-140 | 0.02 | 0.0% |
| 20-25 | 2.18 | 1.8% | 80-85 | 8.74 | 7.2% | 140-145 | 0.01 | 0.0% |
| 25-30 | 2.93 | 2.4% | 85-90 | 4.09 | 3.4% | 145-150 | 0.01 | 0.0% |
| 30-35 | 3.91 | 3.2% | 90-95 | 1.82 | 1.5% | 150-155 | 0.01 | 0.0% |
| 35-40 | 5.06 | 4.2% | 95-100 | 0.86 | 0.7% | 155-160 | 0.01 | 0.0% |
| 40-45 | 6.33 | 5.2% | 100-105 | 0.27 | 0.2% | 160-165 | 0.01 | 0.0% |
| 45-50 | 7.70 | 6.4% | 105-110 | 0.05 | 0.0% | 165-170 | 0.00 | 0.0% |
| 50-55 | 9.22 | 7.6% | 110-115 | 0.04 | 0.0% | 170-175 | 0.00 | 0.0% |
| 55-60 | 11.06 | 9.1% | 115-120 | 0.03 | 0.0% | 175-180 | 0.00 | 0.0% |

| Zone | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40 | 18 | 14.6% |
| 0-60 | 52 | 43.0% |
| 0-90 | 118 | 97.4% |
| 90-180 | 3 | 2.7% |



Candela Tabulation
Horizontal Angle (Degrees)

| | 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 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 |
| 5 | 9.27 | 9.34 | 9.32 | 9.28 | 9.37 | 9.28 | 9.32 | 9.34 | 9.27 | 9.34 | 9.32 | 9.28 | 9.37 | 9.28 | 9.32 | 9.34 |
| 10 | 9.29 | 9.30 | 9.27 | 9.28 | 9.35 | 9.28 | 9.27 | 9.30 | 9.29 | 9.30 | 9.27 | 9.28 | 9.35 | 9.28 | 9.27 | 9.30 |
| 15 | 9.42 | 9.45 | 9.45 | 9.45 | 9.52 | 9.45 | 9.45 | 9.45 | 9.42 | 9.45 | 9.45 | 9.45 | 9.52 | 9.45 | 9.45 | 9.45 |
| 20 | 9.90 | 9.92 | 9.93 | 9.93 | 10.03 | 9.93 | 9.93 | 9.92 | 9.90 | 9.92 | 9.93 | 9.93 | 10.03 | 9.93 | 9.93 | 9.92 |
| 25 | 10.80 | 10.87 | 10.88 | 10.89 | 10.98 | 10.89 | 10.88 | 10.87 | 10.80 | 10.87 | 10.88 | 10.89 | 10.98 | 10.89 | 10.88 | 10.87 |
| 30 | 12.23 | 12.31 | 12.29 | 12.35 | 12.49 | 12.35 | 12.29 | 12.31 | 12.23 | 12.31 | 12.29 | 12.35 | 12.49 | 12.35 | 12.29 | 12.31 |
| 35 | 14.06 | 14.16 | 14.15 | 14.20 | 14.35 | 14.20 | 14.15 | 14.16 | 14.06 | 14.16 | 14.15 | 14.20 | 14.35 | 14.20 | 14.15 | 14.16 |
| 40 | 15.97 | 16.12 | 16.12 | 16.14 | 16.25 | 16.14 | 16.12 | 16.12 | 15.97 | 16.12 | 16.12 | 16.14 | 16.25 | 16.14 | 16.12 | 16.12 |
| 45 | 17.90 | 18.02 | 18.06 | 18.06 | 18.16 | 18.06 | 18.06 | 18.02 | 17.90 | 18.02 | 18.06 | 18.06 | 18.16 | 18.06 | 18.06 | 18.02 |
| 50 | 19.96 | 20.00 | 20.03 | 20.09 | 20.20 | 20.09 | 20.03 | 20.00 | 19.96 | 20.00 | 20.03 | 20.09 | 20.20 | 20.09 | 20.03 | 20.00 |
| 55 | 22.45 | 22.45 | 22.41 | 22.44 | 22.52 | 22.44 | 22.41 | 22.45 | 22.45 | 22.45 | 22.41 | 22.44 | 22.52 | 22.44 | 22.41 | 22.45 |
| 60 | 25.53 | 25.55 | 25.42 | 25.30 | 25.19 | 25.30 | 25.42 | 25.55 | 25.53 | 25.55 | 25.42 | 25.30 | 25.19 | 25.30 | 25.42 | 25.55 |
| 65 | 27.79 | 27.97 | 27.83 | 27.46 | 27.00 | 27.46 | 27.83 | 27.97 | 27.79 | 27.97 | 27.83 | 27.46 | 27.00 | 27.46 | 27.83 | 27.97 |
| 70 | 27.52 | 27.69 | 27.54 | 27.08 | 26.48 | 27.08 | 27.54 | 27.69 | 27.52 | 27.69 | 27.54 | 27.08 | 26.48 | 27.08 | 27.54 | 27.69 |
| 75 | 25.22 | 25.18 | 24.93 | 24.46 | 24.11 | 24.46 | 24.93 | 25.18 | 25.22 | 25.18 | 24.93 | 24.46 | 24.11 | 24.46 | 24.93 | 25.18 |
| 80 | 20.11 | 20.67 | 20.57 | 20.11 | 19.72 | 20.11 | 20.57 | 20.67 | 20.11 | 20.67 | 20.57 | 20.11 | 19.72 | 20.11 | 20.57 | 20.67 |
| 85 | 6.05 | 11.87 | 11.99 | 11.99 | 11.71 | 11.99 | 11.99 | 11.87 | 6.05 | 11.87 | 11.99 | 11.99 | 11.71 | 11.99 | 11.99 | 11.87 |
| 90 | 2.17 | 5.04 | 5.18 | 5.18 | 5.10 | 5.18 | 5.18 | 5.04 | 2.17 | 5.04 | 5.18 | 5.18 | 5.10 | 5.18 | 5.18 | 5.04 |
| 95 | 1.20 | 1.87 | 2.50 | 2.68 | 2.65 | 2.68 | 2.50 | 1.87 | 1.20 | 1.87 | 2.50 | 2.68 | 2.65 | 2.68 | 2.50 | 1.87 |
| 100 | 0.47 | 0.67 | 0.94 | 1.47 | 1.50 | 1.47 | 0.94 | 0.67 | 0.47 | 0.67 | 0.94 | 1.47 | 1.50 | 1.47 | 0.94 | 0.67 |
| 105 | 0.11 | 0.11 | 0.09 | 0.18 | 0.31 | 0.18 | 0.09 | 0.11 | 0.11 | 0.11 | 0.09 | 0.18 | 0.31 | 0.18 | 0.09 | 0.11 |
| 110 | 0.08 | 0.08 | 0.09 | 0.08 | 0.07 | 0.08 | 0.09 | 0.08 | 0.08 | 0.08 | 0.09 | 0.08 | 0.07 | 0.08 | 0.09 | 0.08 |
| 115 | 0.06 | 0.08 | 0.07 | 0.08 | 0.06 | 0.08 | 0.07 | 0.08 | 0.06 | 0.08 | 0.07 | 0.08 | 0.06 | 0.08 | 0.07 | 0.08 |
| 120 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 | 0.06 | 0.06 | 0.06 |
| 125 | 0.06 | 0.07 | 0.07 | 0.06 | 0.05 | 0.06 | 0.07 | 0.07 | 0.06 | 0.07 | 0.07 | 0.06 | 0.05 | 0.06 | 0.07 | 0.07 |
| 130 | 0.05 | 0.06 | 0.06 | 0.05 | 0.04 | 0.05 | 0.06 | 0.06 | 0.05 | 0.06 | 0.06 | 0.05 | 0.04 | 0.05 | 0.06 | 0.06 |
| 135 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 | 0.05 | 0.05 | 0.05 |
| 140 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 |
| 145 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 150 | 0.03 | 0.03 | 0.03 | 0.03 | 0.01 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.01 | 0.03 | 0.03 | 0.03 |
| 155 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 |
| 160 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 165 | 0.03 | 0.03 | 0.03 | 0.04 | 0.02 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.02 | 0.04 | 0.03 | 0.03 |
| 170 | 0.03 | 0.03 | 0.03 | 0.03 | 0.01 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.01 | 0.03 | 0.03 | 0.03 |
| 175 | 0.05 | 0.04 | 0.05 | 0.04 | 0.03 | 0.04 | 0.05 | 0.04 | 0.05 | 0.04 | 0.05 | 0.04 | 0.03 | 0.04 | 0.05 | 0.04 |
| 180 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

| | 0 | 45 | 90 |
|----|--------|--------|--------|
| 0 | 11480 | 11480 | 11480 |
| 45 | 31380 | 31670 | 31840 |
| 55 | 48540 | 48450 | 48690 |
| 65 | 81540 | 81660 | 79230 |
| 75 | 120800 | 119400 | 115500 |
| 85 | 86110 | 170600 | 166600 |



Utilization of Lumens - Zonal Cavity Method

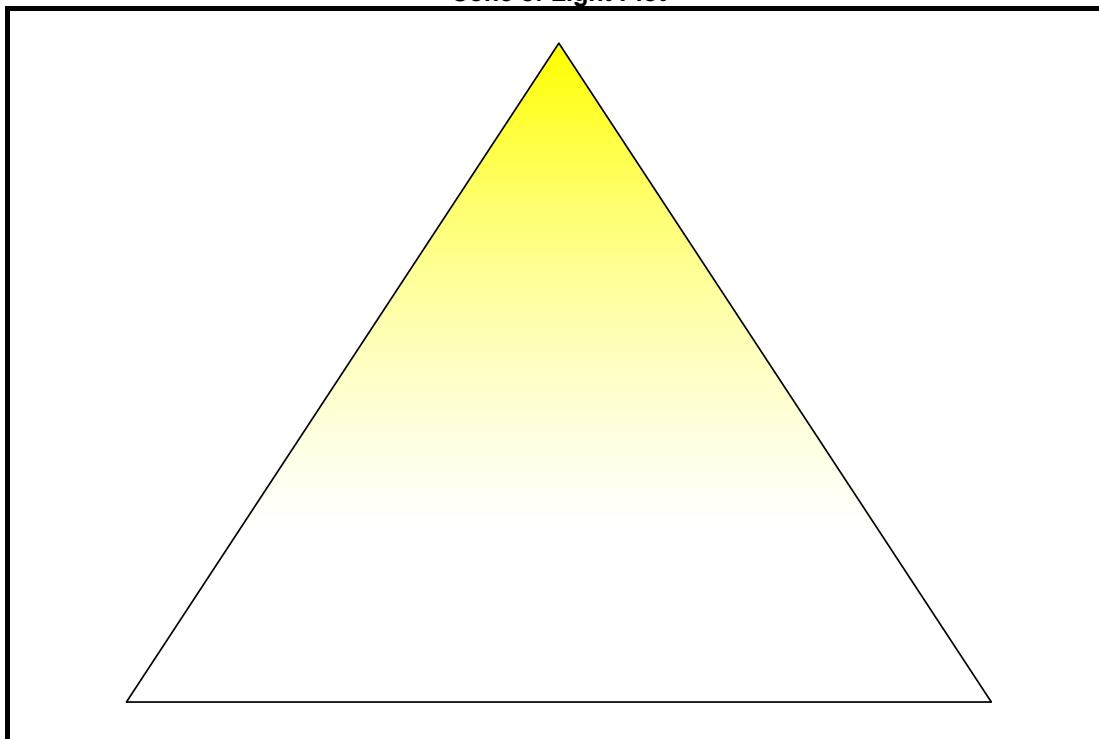
Effective Floor Cavity Reflectance 20%

| Ceiling Cavity Reflectance | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----------------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Wall Reflectance | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| Room Cavity Ratio (RCR) | ** Values are expressed as Lumens delivered to the task surface ** | | | | | | | | | | | | | | | | | |
| 0 | 143 | 143 | 143 | 143 | 139 | 139 | 139 | 139 | 133 | 133 | 133 | 126 | 126 | 126 | 120 | 120 | 120 | 118 |
| 1 | 122 | 112 | 104 | 96 | 118 | 109 | 101 | 94 | 103 | 96 | 90 | 97 | 92 | 87 | 92 | 88 | 84 | 80 |
| 2 | 106 | 91 | 79 | 68 | 102 | 88 | 77 | 67 | 83 | 73 | 65 | 78 | 70 | 63 | 73 | 67 | 61 | 57 |
| 3 | 93 | 75 | 62 | 51 | 89 | 73 | 60 | 50 | 68 | 57 | 48 | 64 | 55 | 47 | 60 | 52 | 45 | 42 |
| 4 | 83 | 64 | 50 | 39 | 80 | 62 | 49 | 38 | 58 | 46 | 37 | 54 | 44 | 36 | 51 | 42 | 35 | 32 |
| 5 | 75 | 55 | 41 | 31 | 72 | 54 | 40 | 31 | 50 | 39 | 30 | 47 | 37 | 29 | 44 | 35 | 28 | 25 |
| 6 | 69 | 48 | 35 | 25 | 66 | 47 | 34 | 25 | 44 | 33 | 24 | 42 | 32 | 24 | 39 | 30 | 23 | 20 |
| 7 | 63 | 43 | 30 | 21 | 60 | 42 | 30 | 21 | 39 | 28 | 20 | 37 | 27 | 20 | 35 | 26 | 19 | 17 |
| 8 | 58 | 39 | 26 | 18 | 56 | 38 | 26 | 18 | 36 | 25 | 17 | 34 | 24 | 17 | 32 | 23 | 17 | 14 |
| 9 | 54 | 35 | 23 | 16 | 52 | 34 | 23 | 15 | 32 | 22 | 15 | 31 | 21 | 15 | 29 | 21 | 14 | 12 |
| 10 | 50 | 32 | 21 | 14 | 48 | 31 | 21 | 13 | 30 | 20 | 13 | 28 | 19 | 13 | 27 | 19 | 13 | 10 |

Cone of Light Tabulation

| Mounting Height | Footcandles at Nadir | Diameter (Feet) |
|-----------------|----------------------|-----------------|
| 4.00 | 0.579 | 10.7 |
| 6.00 | 0.257 | 16.0 |
| 8.00 | 0.145 | 21.4 |
| 10.0 | 0.0926 | 26.7 |
| 12.0 | 0.0643 | 32.0 |
| 14.0 | 0.0472 | 37.4 |
| 16.0 | 0.0362 | 42.7 |

Cone of Light Plot





In-Situ Test

In-Situ Test Conditions

| Temperature | Voltage | Current | Power | Power Factor | Frequency | Current THD |
|-------------|-----------|---------|-------|--------------|-----------|-------------|
| 24.0 °C | 12.05 VDC | N/A | N/A | N/A | N/A | N/A |

Summary of Results

LED Temperature: 42.7 °C

Measured LED Current: 0.09350 A

Temperatures are offset to an ambient temperature of 25°C as described in UL1598-2008

LED Temperature Location

