



UL Verification Services Inc.
7036 Snowdrift Road
Allentown, PA 18106
610-774-1300



Photometric Test Report

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

Prepared For
Auroralight Inc

2742 Loker Ave W
#100
Carlsbad, CA 92010-6619
United States

Catalog Number
LWL2-2-WF-30 (2W, 60° OPTIC, 3000K)
Order Number
13551695
Test Number
13551695.12

Test Date

2020-11-18

Prepared By

Javier Caban, Technician

Approved By

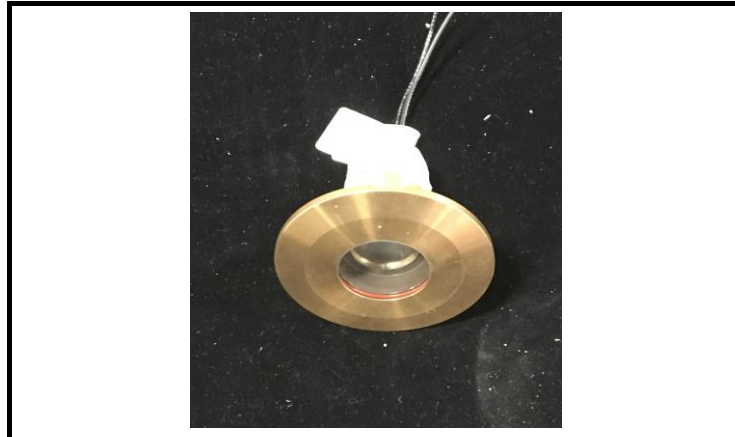
Alexa Lambert, Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Cylindrical brass housing with circular brass faceplate and clear lens
Lamp: One (1) XHP35 3000K Cree LED
Mounting: Recessed
Ballast/Driver: Integrated

Luminaire



Luminaire Characteristics

Luminous Diameter: 1.25 in.

Summary of Results

Roadway Classification: Type V, Very Short
Cutoff Classification: Cutoff
BUG Rating: B0 U1 G0

Test Conditions

Test Temperature: 25.1 °C
Voltage: 12.02 VAC
Current: 0.1666 A
Power: 1.885 W
Power Factor: 0.942
Frequency: 60 Hz
Current THD: 21.5 %

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

Laboratory results may not be representative of field performance
Ballast factors have not been applied



Distribution - Goniophotometer

Distribution Test Conditions

| Temperature | Voltage | Current | Power | Power Factor | Frequency | Current THD |
|-------------|-----------|----------|---------|--------------|-----------|-------------|
| 25.1 °C | 12.02 VAC | 0.1666 A | 1.885 W | 0.942 | 60 Hz | 21.5 % |

Summary of Results

Spacing Criteria

0-180: 0.79
90-270: 0.79

Total Lumen Output:

114.7 Lumens

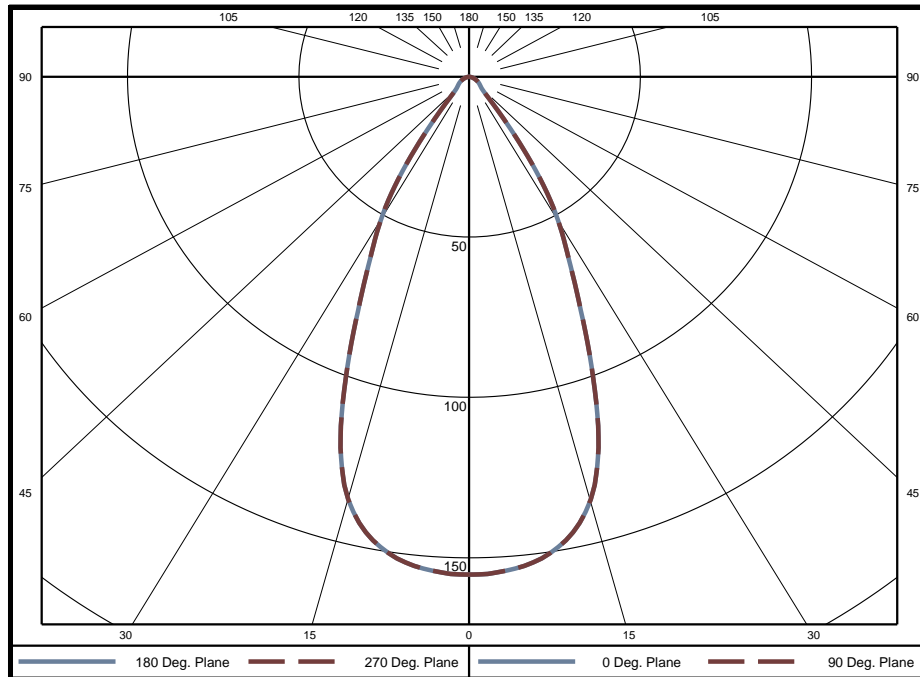
Luminaire Efficacy:

60.8 lm/w

Maximum Candela:

155 Candela

Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5 | 3.70 | 3.2% | 60-65 | 1.21 | 1.1% | 120-125 | 0 | 0.0% |
| 5-10 | 10.85 | 9.5% | 65-70 | 0.93 | 0.8% | 125-130 | 0 | 0.0% |
| 10-15 | 16.99 | 14.8% | 70-75 | 0.67 | 0.6% | 130-135 | 0 | 0.0% |
| 15-20 | 20.29 | 17.7% | 75-80 | 0.42 | 0.4% | 135-140 | 0 | 0.0% |
| 20-25 | 18.81 | 16.4% | 80-85 | 0.18 | 0.2% | 140-145 | 0 | 0.0% |
| 25-30 | 15.64 | 13.6% | 85-90 | 0.04 | 0.0% | 145-150 | 0 | 0.0% |
| 30-35 | 11.71 | 10.2% | 90-95 | 0.00 | 0.0% | 150-155 | 0 | 0.0% |
| 35-40 | 5.67 | 4.9% | 95-100 | 0 | 0.0% | 155-160 | 0 | 0.0% |
| 40-45 | 2.54 | 2.2% | 100-105 | 0 | 0.0% | 160-165 | 0 | 0.0% |
| 45-50 | 1.89 | 1.6% | 105-110 | 0 | 0.0% | 165-170 | 0 | 0.0% |
| 50-55 | 1.68 | 1.5% | 110-115 | 0 | 0.0% | 170-175 | 0 | 0.0% |
| 55-60 | 1.47 | 1.3% | 115-120 | 0 | 0.0% | 175-180 | 0 | 0.0% |

| Zone | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40 | 104 | 90.4% |
| 0-60 | 111 | 97.0% |
| 0-90 | 115 | 100.0% |
| 90-180 | 0 | 0.0% |



Candela Tabulation
Horizontal Angle (Degrees)

| Vertical Angle (Degrees) | 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 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 | 155.2 |
| | 5 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 | 154.0 |
| | 10 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 | 148.9 |
| | 15 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 | 136.5 |
| | 20 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 | 107.9 |
| | 25 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 |
| | 30 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 |
| | 35 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 | 27.3 |
| | 40 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 | 9.7 |
| | 45 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 |
| | 50 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| | 55 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| | 60 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| | 65 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| | 70 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| | 75 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| | 80 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| | 85 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| | 90 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 95 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 105 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 110 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 115 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 120 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 125 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 130 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 135 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 140 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 145 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 150 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 155 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 160 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 165 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 170 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 175 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 180 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Average Luminance (cd/m²)

| Vertical Angle (Degrees) | Horizontal Angle (Degrees) | | | |
|-----------------------------|----------------------------|--------|--------|--------|
| | 0 | 45 | 90 | |
| | 0 | 196100 | 196100 | 196100 |
| | 45 | 9396 | 9396 | 9396 |
| | 55 | 7770 | 7770 | 7770 |
| | 65 | 6433 | 6433 | 6433 |
| | 75 | 5056 | 5056 | 5056 |
| | 85 | 2218 | 2218 | 2218 |



Utilization of Lumens - Zonal Cavity Method

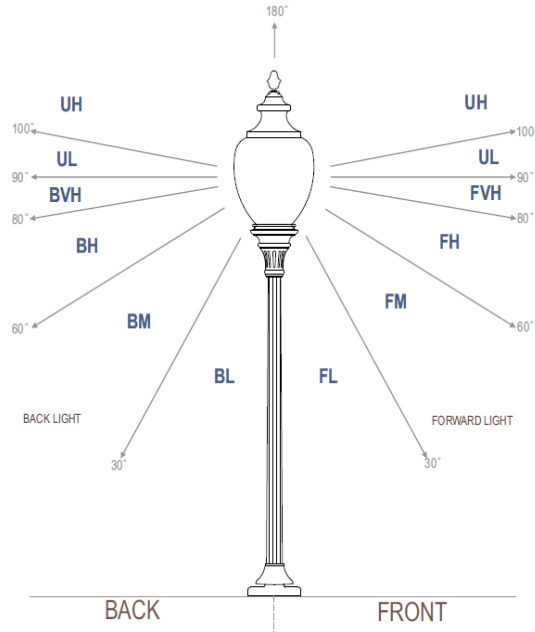
| Effective Floor Cavity Reflectance 20% | | | | | | | | | | | | | | | | | | |
|--|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ceiling Cavity Reflectance | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
| Wall Reflectance | 70 | 50 | 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 | 136 | 136 | 136 | 136 | 133 | 133 | 133 | 133 | 127 | 127 | 127 | 122 | 122 | 122 | 117 | 117 | 117 | 115 |
| 1 | 130 | 127 | 124 | 121 | 127 | 124 | 122 | 119 | 120 | 117 | 116 | 115 | 114 | 112 | 111 | 110 | 109 | 107 |
| 2 | 123 | 118 | 113 | 109 | 121 | 116 | 112 | 108 | 112 | 109 | 106 | 109 | 106 | 103 | 106 | 103 | 101 | 99 |
| 3 | 117 | 110 | 104 | 100 | 115 | 108 | 103 | 99 | 105 | 101 | 97 | 103 | 99 | 96 | 100 | 97 | 94 | 92 |
| 4 | 112 | 103 | 97 | 92 | 110 | 102 | 96 | 91 | 99 | 94 | 90 | 97 | 93 | 89 | 95 | 91 | 88 | 86 |
| 5 | 106 | 97 | 90 | 85 | 104 | 96 | 89 | 85 | 94 | 88 | 84 | 92 | 87 | 83 | 90 | 86 | 83 | 81 |
| 6 | 101 | 91 | 84 | 80 | 100 | 90 | 84 | 79 | 89 | 83 | 79 | 87 | 82 | 78 | 85 | 81 | 78 | 76 |
| 7 | 97 | 86 | 79 | 75 | 95 | 85 | 79 | 74 | 84 | 78 | 74 | 83 | 77 | 74 | 81 | 77 | 73 | 72 |
| 8 | 92 | 82 | 75 | 70 | 91 | 81 | 75 | 70 | 80 | 74 | 70 | 79 | 73 | 70 | 77 | 73 | 69 | 68 |
| 9 | 88 | 77 | 71 | 66 | 87 | 77 | 71 | 66 | 76 | 70 | 66 | 75 | 70 | 66 | 74 | 69 | 66 | 64 |
| 10 | 84 | 74 | 67 | 63 | 83 | 73 | 67 | 63 | 72 | 67 | 63 | 71 | 66 | 62 | 70 | 66 | 62 | 61 |

| Beam and Field Information | |
|----------------------------|---------------|
| CIE Type: | Direct |
| Center Beam Intensity: | 155.2 Candela |
| Central Cone Intensity: | 155 Candela |
| Beam Flux: | 68.4 Lumens |
| Beam Angle (0-180): | 48.7 Degrees |
| Beam Angle (90-270): | 48.7 Degrees |
| Field Angle (0-180): | 75.5 Degrees |
| Field Angle (90-270): | 75.5 Degrees |

| Cone of Light Tabulation | | | |
|--------------------------|--|----------------------|-----------------|
| Mounting Height (Feet) | | Footcandles at Nadir | Diameter (Feet) |
| 6.00 | | 4.31 | 4.74 |
| 10.0 | | 1.55 | 7.91 |
| 14.0 | | 0.792 | 11.1 |
| 18.0 | | 0.479 | 14.2 |
| 22.0 | | 0.321 | 17.4 |
| 26.0 | | 0.230 | 20.6 |
| 30.0 | | 0.172 | 23.7 |



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



Luminaire Classification System (LCS)

| LCS | Zone | Lumens | Luminaire % |
|-------------------|-----------------|--------|-------------|
| FL | (0-30) | 43.1 | 37.6% |
| FM | (30-60) | 12.5 | 10.9% |
| FH | (60-80) | 1.6 | 1.4% |
| FVH | (80-90) | 0.1 | 0.1% |
| BL | (0-30) | 43.1 | 37.6% |
| BM | (30-60) | 12.5 | 10.9% |
| BH | (60-80) | 1.6 | 1.4% |
| BVH | (80-90) | 0.1 | 0.1% |
| UL | (90-100) | 0.0 | 0.0% |
| UH | (100-180) | 0.0 | 0.0% |
| Total | | 114.7 | 100.0% |
| BUG Rating | B0 U1 G0 | | |