



UL LLC
1075 W Lambert Rd Suite B
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Photometric Test Report

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

Prepared For
Auroralight Inc
2742 Loker Ave. West
Carlsbad, CA 92010

Catalog Number
LBD350-C11-GL-12-30-32 (GRADUATED LOUVERS, 3000K)
Order Number
11263738
Test Number
1254194

Test Date

2016-05-26

Prepared By

Tony Rubio, Technician

Approved By

Eric Gaudreau, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Conical 11" copper shade with graduated louvers and cylindrical 32" copper stem with brass base
Lamp: Eight (8) Cree XP-L 3000K LEDs
Mounting: Path/Area
Ballast/Driver: L.T.F. DL112W480C24LP65-0000

Luminaire



Luminaire Characteristics

Luminous Diameter: 11.00 in.
Luminous Height: 1.50 in.

Summary of Results

| | |
|-------------------------|----------------|
| Roadway Classification: | Type II, Short |
| Cutoff Classification: | Semicutoff |
| BUG Rating: | B0 U1 G0 |

Test Conditions

| | |
|-------------------|-----------|
| Test Temperature: | 25.0 °C |
| Voltage: | 12.04 VAC |
| Current: | 1.907 A |
| Power: | 12.43 W |
| Power Factor: | 0.541 |
| Frequency: | 60 Hz |
| Current THD: | 84.0 % |

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 |
|-------------|-----------|---------|---------|--------------|-----------|-------------|
| 25.0 °C | 12.04 VAC | 1.907 A | 12.43 W | 0.541 | 60 Hz | 84.0 % |

Summary of Results

Spacing Criteria

0-180: 1.95

90-270: 1.98

Total Lumen Output:

300.0 Lumens

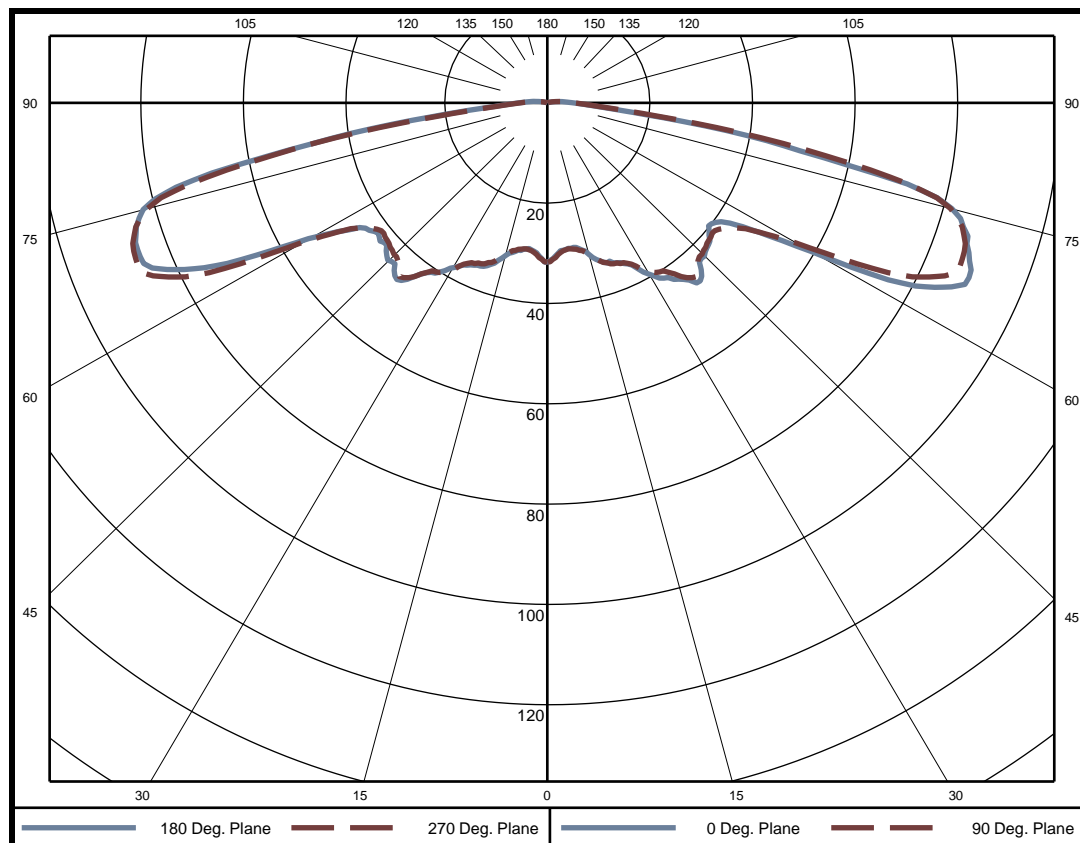
Luminaire Efficacy:

24.1 lm/w

Maximum Candela:

90 Candela

Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire | Zone | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5 | 0.73 | 0.2% | 60-65 | 32.10 | 10.7% | 120-125 | 0 | 0.0% |
| 5-10 | 2.11 | 0.7% | 65-70 | 41.08 | 13.7% | 125-130 | 0 | 0.0% |
| 10-15 | 3.61 | 1.2% | 70-75 | 41.98 | 14.0% | 130-135 | 0 | 0.0% |
| 15-20 | 5.43 | 1.8% | 75-80 | 33.72 | 11.2% | 135-140 | 0 | 0.0% |
| 20-25 | 7.30 | 2.4% | 80-85 | 14.67 | 4.9% | 140-145 | 0 | 0.0% |
| 25-30 | 9.22 | 3.1% | 85-90 | 4.43 | 1.5% | 145-150 | 0 | 0.0% |
| 30-35 | 11.75 | 3.9% | 90-95 | 2.17 | 0.7% | 150-155 | 0 | 0.0% |
| 35-40 | 14.49 | 4.8% | 95-100 | 1.11 | 0.4% | 155-160 | 0 | 0.0% |
| 40-45 | 16.11 | 5.4% | 100-105 | 0.47 | 0.2% | 160-165 | 0 | 0.0% |
| 45-50 | 17.05 | 5.7% | 105-110 | 0.15 | 0.1% | 165-170 | 0 | 0.0% |
| 50-55 | 18.29 | 6.1% | 110-115 | 0.01 | 0.0% | 170-175 | 0 | 0.0% |
| 55-60 | 22.04 | 7.3% | 115-120 | 0 | 0.0% | 175-180 | 0 | 0.0% |

| Zone | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40 | 55 | 18.2% |
| 0-60 | 128 | 42.7% |
| 0-90 | 296 | 98.7% |
| 90-180 | 4 | 1.3% |



Candela Tabulation

Horizontal Angle (Degrees)

| Vertical 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 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 | 31.69 |
| | 5 | 29.59 | 29.33 | 29.53 | 29.86 | 29.93 | 29.64 | 29.84 | 30.04 | 29.74 | 30.04 | 29.84 | 29.64 | 29.93 | 29.86 | 29.53 |
| | 10 | 29.27 | 29.40 | 29.53 | 29.98 | 29.61 | 29.62 | 29.99 | 30.08 | 29.92 | 30.08 | 29.99 | 29.62 | 29.61 | 29.98 | 29.53 |
| | 15 | 31.29 | 31.38 | 31.17 | 31.49 | 31.27 | 31.44 | 31.85 | 31.85 | 31.52 | 31.85 | 31.85 | 31.44 | 31.27 | 31.49 | 31.17 |
| | 20 | 33.99 | 34.08 | 33.52 | 33.87 | 33.88 | 34.10 | 34.41 | 34.53 | 34.59 | 34.53 | 34.41 | 34.10 | 33.88 | 33.87 | 33.52 |
| | 25 | 35.36 | 35.57 | 34.76 | 34.99 | 35.15 | 35.35 | 35.68 | 35.70 | 35.68 | 35.70 | 35.68 | 35.35 | 35.15 | 34.99 | 34.76 |
| | 30 | 39.41 | 38.93 | 37.55 | 38.41 | 38.83 | 37.16 | 37.48 | 37.64 | 38.10 | 37.64 | 37.48 | 37.16 | 38.83 | 38.41 | 37.55 |
| | 35 | 42.97 | 42.64 | 41.51 | 41.33 | 41.26 | 40.26 | 41.83 | 41.15 | 41.37 | 41.15 | 41.83 | 40.26 | 41.26 | 41.33 | 41.51 |
| | 40 | 46.33 | 46.42 | 45.05 | 44.90 | 45.21 | 43.55 | 45.00 | 44.52 | 46.00 | 44.52 | 45.00 | 43.55 | 45.21 | 44.90 | 45.05 |
| | 45 | 43.24 | 42.22 | 40.29 | 42.21 | 42.65 | 41.49 | 42.25 | 42.57 | 44.36 | 42.57 | 42.25 | 41.49 | 42.65 | 42.21 | 40.29 |
| | 50 | 41.10 | 41.86 | 40.63 | 41.40 | 41.61 | 42.33 | 44.86 | 43.00 | 42.90 | 43.00 | 44.86 | 42.33 | 41.61 | 41.40 | 40.63 |
| | 55 | 41.32 | 42.64 | 42.22 | 42.36 | 43.38 | 43.91 | 44.56 | 42.79 | 43.61 | 42.79 | 44.56 | 43.91 | 43.38 | 42.36 | 42.22 |
| | 60 | 59.18 | 57.52 | 51.66 | 54.58 | 55.75 | 52.62 | 53.14 | 51.95 | 54.20 | 51.95 | 53.14 | 52.62 | 55.75 | 54.58 | 51.66 |
| | 65 | 86.83 | 84.68 | 72.75 | 79.66 | 82.13 | 67.95 | 73.69 | 71.72 | 78.70 | 71.72 | 73.69 | 67.95 | 82.13 | 79.66 | 72.75 |
| | 70 | 87.34 | 89.52 | 77.79 | 83.30 | 86.48 | 73.21 | 83.51 | 76.47 | 85.70 | 76.47 | 83.51 | 73.21 | 86.48 | 83.30 | 77.79 |
| | 75 | 81.55 | 84.01 | 72.00 | 78.38 | 81.31 | 68.17 | 79.35 | 71.62 | 82.23 | 71.62 | 79.35 | 68.17 | 81.31 | 78.38 | 72.00 |
| | 80 | 43.36 | 48.74 | 44.76 | 43.41 | 46.74 | 39.67 | 47.94 | 40.10 | 46.85 | 40.10 | 47.94 | 39.67 | 46.74 | 43.41 | 44.76 |
| | 85 | 11.39 | 13.28 | 12.89 | 11.95 | 12.43 | 13.18 | 13.08 | 12.03 | 13.37 | 12.03 | 13.08 | 13.18 | 12.43 | 11.95 | 12.89 |
| | 90 | 5.01 | 5.56 | 5.29 | 4.95 | 5.24 | 5.50 | 5.16 | 4.94 | 5.57 | 4.94 | 5.16 | 5.50 | 5.24 | 4.95 | 5.29 |
| | 95 | 2.85 | 3.10 | 2.93 | 2.81 | 2.98 | 2.99 | 2.96 | 2.81 | 3.08 | 2.81 | 2.96 | 2.99 | 2.98 | 2.81 | 2.93 |
| | 100 | 1.22 | 1.35 | 1.30 | 1.28 | 1.36 | 1.39 | 1.40 | 1.35 | 1.45 | 1.35 | 1.40 | 1.39 | 1.36 | 1.28 | 1.30 |
| | 105 | 0.40 | 0.48 | 0.45 | 0.46 | 0.50 | 0.53 | 0.53 | 0.51 | 0.56 | 0.51 | 0.53 | 0.53 | 0.50 | 0.46 | 0.45 |
| | 110 | 0.08 | 0.09 | 0.08 | 0.10 | 0.10 | 0.10 | 0.11 | 0.12 | 0.13 | 0.12 | 0.11 | 0.10 | 0.10 | 0.08 | 0.09 |
| | 115 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 120 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 125 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 130 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 135 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 140 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 145 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 150 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 155 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 160 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 165 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 170 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 175 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 180 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Average Luminance (cd/m²)

Horizontal Angle (Degrees)

| Vertical Angle (Degrees) | Horizontal Angle (Degrees) | | | |
|-----------------------------|----------------------------|------|------|------|
| | 0 | 45 | 90 | |
| | 0 | 517 | 517 | 517 |
| | 45 | 2117 | 1973 | 2088 |
| | 55 | 1286 | 1314 | 1350 |
| | 65 | 2431 | 2037 | 2300 |
| | 75 | 2102 | 1856 | 2096 |
| | 85 | 283 | 320 | 309 |



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 | 356 | 356 | 356 | 356 | 348 | 348 | 348 | 348 | 331 | 331 | 331 | 316 | 316 | 316 | 303 | 303 | 303 | 296 |
| 1 | 306 | 284 | 264 | 246 | 297 | 276 | 258 | 241 | 262 | 246 | 232 | 249 | 236 | 224 | 236 | 226 | 216 | 209 |
| 2 | 265 | 229 | 199 | 174 | 256 | 223 | 195 | 171 | 210 | 187 | 166 | 199 | 179 | 161 | 188 | 172 | 157 | 148 |
| 3 | 234 | 190 | 156 | 129 | 224 | 184 | 153 | 127 | 174 | 147 | 124 | 164 | 141 | 121 | 155 | 135 | 118 | 109 |
| 4 | 209 | 162 | 127 | 100 | 201 | 157 | 124 | 99 | 148 | 119 | 97 | 139 | 115 | 95 | 132 | 110 | 92 | 84 |
| 5 | 189 | 140 | 106 | 81 | 181 | 136 | 104 | 80 | 129 | 100 | 78 | 121 | 96 | 77 | 115 | 93 | 75 | 67 |
| 6 | 173 | 123 | 90 | 67 | 166 | 120 | 89 | 66 | 114 | 86 | 65 | 108 | 83 | 64 | 102 | 80 | 62 | 55 |
| 7 | 159 | 110 | 79 | 56 | 153 | 107 | 77 | 56 | 102 | 75 | 55 | 97 | 72 | 54 | 92 | 70 | 53 | 46 |
| 8 | 147 | 99 | 69 | 49 | 142 | 97 | 68 | 48 | 92 | 66 | 47 | 88 | 64 | 47 | 84 | 62 | 46 | 39 |
| 9 | 137 | 90 | 62 | 42 | 132 | 88 | 61 | 42 | 84 | 59 | 42 | 80 | 57 | 41 | 77 | 56 | 40 | 34 |
| 10 | 128 | 83 | 56 | 38 | 124 | 81 | 55 | 37 | 77 | 53 | 37 | 74 | 52 | 36 | 71 | 51 | 36 | 30 |

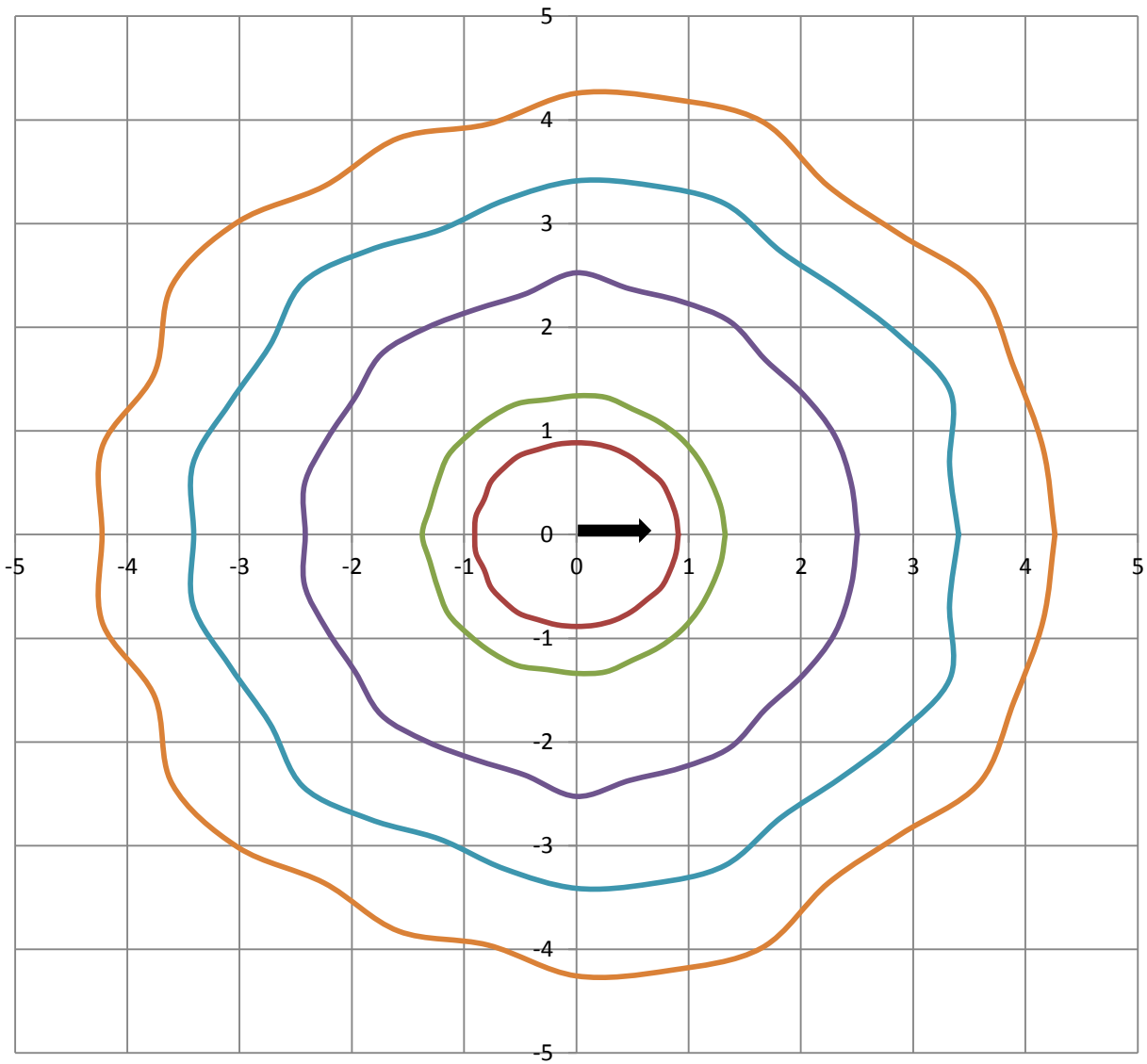
| Beam and Field Information | |
|----------------------------|---------------|
| CIE Type: | Direct |
| Center Beam Intensity: | 31.69 Candela |
| Central Cone Intensity: | 31 Candela |
| Beam Flux: | 290.4 Lumens |
| Beam Angle (0-180): | 168.1 Degrees |
| Beam Angle (90-270): | 168.1 Degrees |
| Field Angle (0-180): | 188.7 Degrees |
| Field Angle (90-270): | 189.0 Degrees |

| Cone of Light Tabulation | | | |
|--------------------------|--|----------------------|-----------------|
| Mounting Height (Feet) | | Footcandles at Nadir | Diameter (Feet) |
| 4.00 | | 1.98 | 7.70 |
| 6.00 | | 0.880 | 11.6 |
| 8.00 | | 0.495 | 15.4 |
| 10.0 | | 0.317 | 19.3 |
| 12.0 | | 0.220 | 23.1 |
| 14.0 | | 0.162 | 27.0 |
| 16.0 | | 0.124 | 30.8 |



ISOFootcandle Plot

Mounting Height - 3 Feet



Grid Lines in Units of Mounting Height





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



Luminaire Classification System (LCS)

| LCS | Zone | Lumens | Luminaire % |
|------------|-----------|--------|-------------|
| FL | (0-30) | 14.2 | 4.8% |
| FM | (30-60) | 49.7 | 16.6% |
| FH | (60-80) | 76.3 | 25.5% |
| FVH | (80-90) | 9.7 | 3.3% |
| BL | (0-30) | 14.3 | 4.8% |
| BM | (30-60) | 50.1 | 16.7% |
| BH | (60-80) | 71.3 | 23.8% |
| BVH | (80-90) | 9.6 | 3.2% |
| UL | (90-100) | 3.3 | 1.1% |
| UH | (100-180) | 0.6 | 0.2% |
| Total | | 299.0 | 100.0% |
| BUG Rating | B0 U1 G0 | | |