



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

## 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-S10-GTL-NL-12-30-32 (NO LOUVERS, 3000K)**  
Order Number  
11263738  
Test Number  
1254199

Test Date

2016-05-29

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:** Spherical 10" stacked copper shades with no 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: 9.75 in.  
Luminous Height: 1.000 in.

**Summary of Results**

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

**Test Conditions**

Test Temperature: 24.1 °C  
Voltage: 12.63 VAC  
Current: 1.907 A  
Power: 12.42 W  
Power Factor: 0.541  
Frequency: 60 Hz  
Current THD: 84.1 %

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 |
|-------------|-----------|---------|---------|--------------|-----------|-------------|
| 24.1 °C     | 12.63 VAC | 1.907 A | 12.42 W | 0.541        | 60 Hz     | 84.1 %      |

### Summary of Results

#### Spacing Criteria

0-180: 1.68

90-270: 1.70

Total Lumen Output:

371.1 Lumens

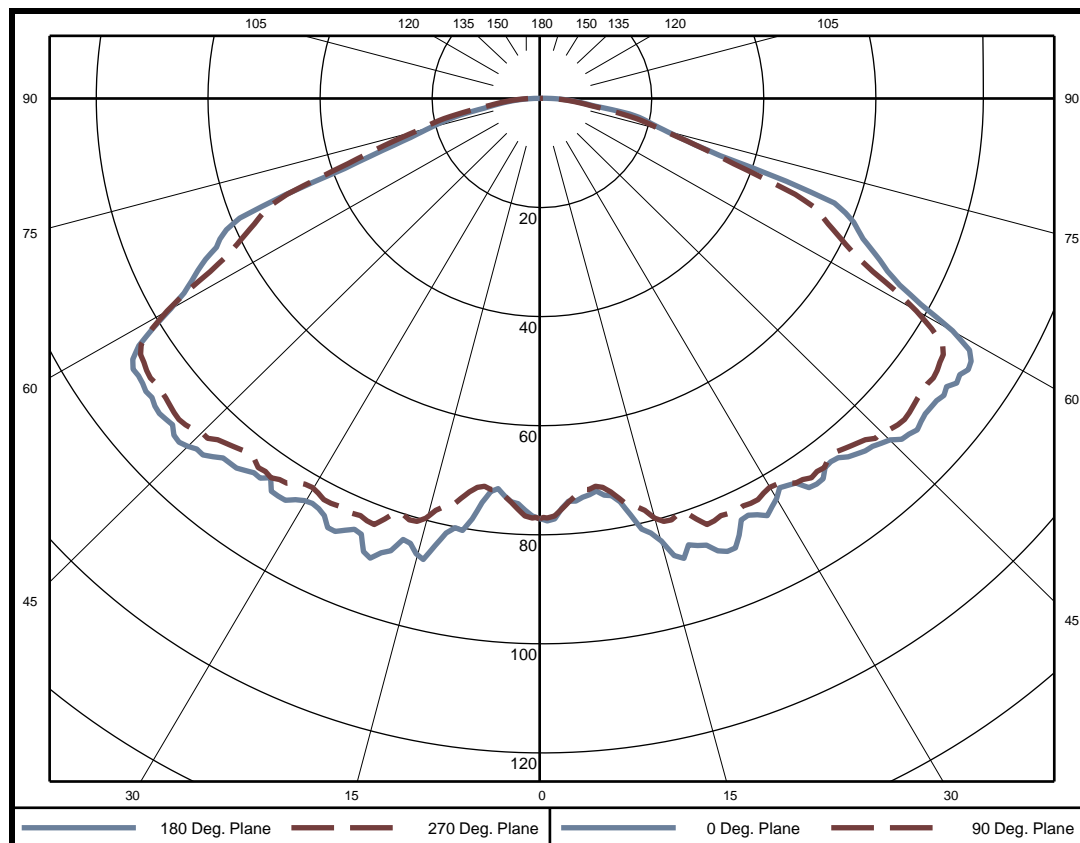
Luminaire Efficacy:

29.9 lm/w

Maximum Candela:

99 Candela

### Polar Plot



### Zonal Lumen Summary

| Zone  | Lumens | % of Luminaire | Zone    | Lumens | % of Luminaire | Zone    | Lumens | % of Luminaire |
|-------|--------|----------------|---------|--------|----------------|---------|--------|----------------|
| 0-5   | 1.80   | 0.5%           | 60-65   | 34.41  | 9.3%           | 120-125 | 0      | 0.0%           |
| 5-10  | 5.29   | 1.4%           | 65-70   | 29.35  | 7.9%           | 125-130 | 0      | 0.0%           |
| 10-15 | 9.51   | 2.6%           | 70-75   | 17.19  | 4.6%           | 130-135 | 0      | 0.0%           |
| 15-20 | 13.95  | 3.8%           | 75-80   | 9.82   | 2.6%           | 135-140 | 0      | 0.0%           |
| 20-25 | 18.31  | 4.9%           | 80-85   | 4.84   | 1.3%           | 140-145 | 0      | 0.0%           |
| 25-30 | 21.47  | 5.8%           | 85-90   | 2.07   | 0.6%           | 145-150 | 0      | 0.0%           |
| 30-35 | 25.11  | 6.8%           | 90-95   | 0.50   | 0.1%           | 150-155 | 0      | 0.0%           |
| 35-40 | 28.72  | 7.7%           | 95-100  | 0.03   | 0.0%           | 155-160 | 0      | 0.0%           |
| 40-45 | 32.57  | 8.8%           | 100-105 | 0      | 0.0%           | 160-165 | 0      | 0.0%           |
| 45-50 | 36.53  | 9.8%           | 105-110 | 0      | 0.0%           | 165-170 | 0      | 0.0%           |
| 50-55 | 39.13  | 10.5%          | 110-115 | 0      | 0.0%           | 170-175 | 0      | 0.0%           |
| 55-60 | 40.52  | 10.9%          | 115-120 | 0      | 0.0%           | 175-180 | 0      | 0.0%           |

| Zone   | Lumens | % of Luminaire |
|--------|--------|----------------|
| 0-40   | 124    | 33.5%          |
| 0-60   | 273    | 73.5%          |
| 0-90   | 371    | 99.9%          |
| 90-180 | 1      | 0.1%           |



### 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   | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 | 77.12 |
|                          | 5   | 74.15 | 73.41 | 73.52 | 73.91 | 73.20 | 73.65 | 74.30 | 73.54 | 73.12 | 73.54 | 74.30 | 73.65 | 73.20 | 73.91 | 73.52 |
|                          | 10  | 73.99 | 73.72 | 74.83 | 74.17 | 73.29 | 75.40 | 79.87 | 81.32 | 80.43 | 81.32 | 79.87 | 75.40 | 73.29 | 74.17 | 74.83 |
|                          | 15  | 84.04 | 82.55 | 85.03 | 82.31 | 79.73 | 80.45 | 83.41 | 84.24 | 86.42 | 84.24 | 83.41 | 80.45 | 79.73 | 82.31 | 85.03 |
|                          | 20  | 87.21 | 87.19 | 84.74 | 83.43 | 82.10 | 83.98 | 87.67 | 89.51 | 89.69 | 89.51 | 87.67 | 83.98 | 82.10 | 83.43 | 84.74 |
|                          | 25  | 85.30 | 89.88 | 86.97 | 82.52 | 83.56 | 82.59 | 87.96 | 89.26 | 87.59 | 89.26 | 87.96 | 82.59 | 83.56 | 82.52 | 86.97 |
|                          | 30  | 84.74 | 88.68 | 82.36 | 83.19 | 82.41 | 82.51 | 84.10 | 85.31 | 85.14 | 85.31 | 84.10 | 82.51 | 82.41 | 83.19 | 82.36 |
|                          | 35  | 86.36 | 91.63 | 84.60 | 84.24 | 84.95 | 85.19 | 86.88 | 86.60 | 84.88 | 86.60 | 86.88 | 85.19 | 84.95 | 84.24 | 84.60 |
|                          | 40  | 85.82 | 91.85 | 83.87 | 84.78 | 84.14 | 84.53 | 88.12 | 87.74 | 87.26 | 87.74 | 88.12 | 84.53 | 84.14 | 84.78 | 83.87 |
|                          | 45  | 88.59 | 95.69 | 85.70 | 88.60 | 86.64 | 86.99 | 91.78 | 91.16 | 90.16 | 91.16 | 91.78 | 86.99 | 86.64 | 88.60 | 85.70 |
|                          | 50  | 90.01 | 97.66 | 86.62 | 90.50 | 87.53 | 87.55 | 92.07 | 90.32 | 89.86 | 90.32 | 92.07 | 87.55 | 87.53 | 90.50 | 86.62 |
|                          | 55  | 91.02 | 98.00 | 85.05 | 91.04 | 87.00 | 86.15 | 92.43 | 89.98 | 88.64 | 89.98 | 92.43 | 86.15 | 87.00 | 91.04 | 85.05 |
|                          | 60  | 85.26 | 90.94 | 79.68 | 82.86 | 78.00 | 80.52 | 80.37 | 74.99 | 77.10 | 74.99 | 80.37 | 80.52 | 78.00 | 82.86 | 79.68 |
|                          | 65  | 65.45 | 71.50 | 61.70 | 64.14 | 58.78 | 62.86 | 65.50 | 60.85 | 64.55 | 60.85 | 65.50 | 62.86 | 58.78 | 64.14 | 61.70 |
|                          | 70  | 56.08 | 61.07 | 48.42 | 48.81 | 42.39 | 45.58 | 48.28 | 41.62 | 37.59 | 41.62 | 48.28 | 45.58 | 42.39 | 48.81 | 48.42 |
|                          | 75  | 23.75 | 25.20 | 23.92 | 22.98 | 23.17 | 22.63 | 21.81 | 21.42 | 20.30 | 21.42 | 21.81 | 22.63 | 23.17 | 22.98 | 23.92 |
|                          | 80  | 16.28 | 16.32 | 14.54 | 13.29 | 13.01 | 12.50 | 11.53 | 10.98 | 10.14 | 10.98 | 11.53 | 12.50 | 13.01 | 13.29 | 14.54 |
|                          | 85  | 6.64  | 6.75  | 6.49  | 6.14  | 6.02  | 5.81  | 5.43  | 5.28  | 4.99  | 5.28  | 5.43  | 5.81  | 6.02  | 6.14  | 6.49  |
|                          | 90  | 2.23  | 2.29  | 2.19  | 2.00  | 1.92  | 1.82  | 1.49  | 1.33  | 1.25  | 1.33  | 1.49  | 1.82  | 1.92  | 2.00  | 2.19  |
|                          | 95  | 0.41  | 0.47  | 0.40  | 0.31  | 0.29  | 0.25  | 0.15  | 0.11  | 0.02  | 0.11  | 0.15  | 0.25  | 0.29  | 0.31  | 0.40  |
|                          | 100 | 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  |
|                          | 105 | 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  |
|                          | 110 | 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  |
|                          | 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/m<sup>2</sup>)

Horizontal Angle (Degrees)

| Vertical Angle<br>(Degrees) | Horizontal Angle (Degrees) |      |      |      |
|-----------------------------|----------------------------|------|------|------|
|                             | 0                          | 45   | 90   |      |
|                             | 0                          | 1601 | 1601 | 1601 |
|                             | 45                         | 7064 | 6834 | 6909 |
|                             | 55                         | 3844 | 3591 | 3674 |
|                             | 65                         | 2499 | 2356 | 2244 |
|                             | 75                         | 813  | 819  | 793  |
|                             | 85                         | 214  | 209  | 194  |



### 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                                      | 442  | 442 | 442 | 442 | 431 | 431 | 431 | 431 | 412 | 412 | 412 | 394 | 394 | 394 | 378 | 378 | 378 | 371 |
| 1                                      | 400  | 381 | 364 | 348 | 390 | 372 | 357 | 342 | 356 | 343 | 331 | 341 | 331 | 321 | 328 | 319 | 311 | 303 |
| 2                                      | 359  | 326 | 298 | 275 | 349 | 319 | 293 | 272 | 305 | 284 | 265 | 293 | 275 | 259 | 281 | 266 | 253 | 244 |
| 3                                      | 324  | 281 | 248 | 221 | 314 | 275 | 244 | 219 | 263 | 237 | 215 | 253 | 230 | 211 | 243 | 224 | 207 | 199 |
| 4                                      | 293  | 245 | 209 | 182 | 284 | 239 | 206 | 180 | 230 | 201 | 178 | 221 | 195 | 175 | 212 | 190 | 173 | 164 |
| 5                                      | 267  | 215 | 179 | 152 | 259 | 211 | 177 | 151 | 202 | 172 | 149 | 195 | 168 | 147 | 188 | 164 | 146 | 137 |
| 6                                      | 244  | 191 | 155 | 129 | 237 | 187 | 153 | 129 | 180 | 150 | 127 | 174 | 147 | 126 | 167 | 143 | 125 | 116 |
| 7                                      | 225  | 171 | 136 | 111 | 218 | 168 | 135 | 111 | 162 | 132 | 110 | 156 | 129 | 109 | 151 | 127 | 108 | 100 |
| 8                                      | 208  | 154 | 121 | 97  | 202 | 152 | 119 | 97  | 146 | 117 | 96  | 142 | 115 | 95  | 137 | 113 | 95  | 87  |
| 9                                      | 194  | 140 | 108 | 86  | 188 | 138 | 107 | 86  | 134 | 105 | 85  | 129 | 103 | 84  | 125 | 101 | 84  | 77  |
| 10                                     | 181  | 129 | 97  | 77  | 176 | 127 | 97  | 76  | 123 | 95  | 76  | 119 | 93  | 75  | 115 | 92  | 75  | 68  |

### Beam and Field Information

|                         |               |
|-------------------------|---------------|
| CIE Type:               | Direct        |
| Center Beam Intensity:  | 77.12 Candela |
| Central Cone Intensity: | 76 Candela    |
| Beam Flux:              | 342.3 Lumens  |
| Beam Angle (0-180):     | 141.6 Degrees |
| Beam Angle (90-270):    | 141.4 Degrees |
| Field Angle (0-180):    | 165.9 Degrees |
| Field Angle (90-270):   | 166.6 Degrees |

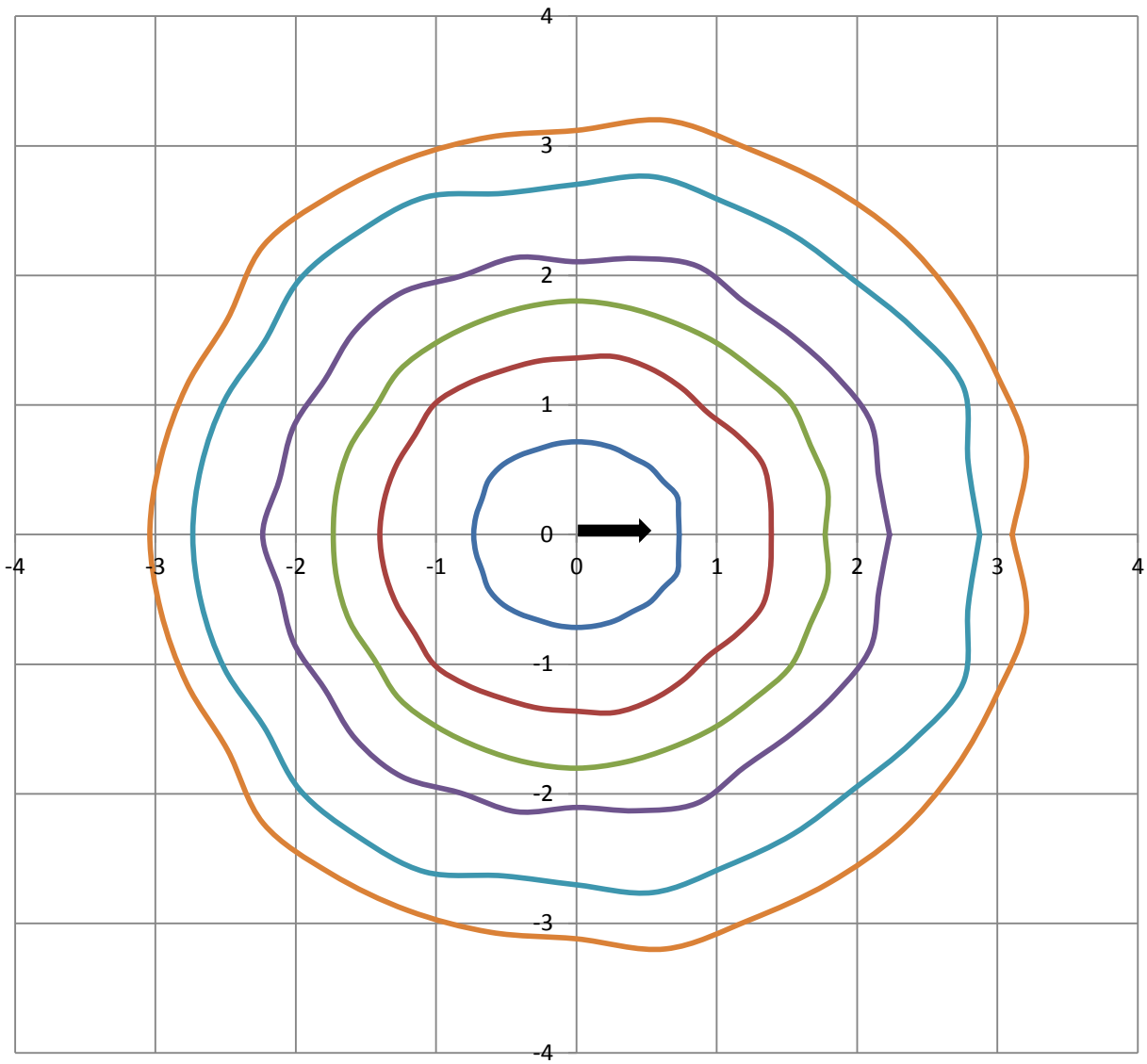
### Cone of Light Tabulation

| Mounting Height (Feet) |  | Footcandles at Nadir | Diameter (Feet) |
|------------------------|--|----------------------|-----------------|
| 4.00                   |  | 4.82                 | 6.76            |
| 6.00                   |  | 2.14                 | 10.1            |
| 8.00                   |  | 1.20                 | 13.5            |
| 10.0                   |  | 0.771                | 16.9            |
| 12.0                   |  | 0.536                | 20.3            |
| 14.0                   |  | 0.393                | 23.7            |
| 16.0                   |  | 0.301                | 27.0            |



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)    | 35.1   | 9.4%        |
| FM         | (30-60)   | 101.7  | 27.4%       |
| FH         | (60-80)   | 47.1   | 12.7%       |
| FVH        | (80-90)   | 3.8    | 1.0%        |
| BL         | (0-30)    | 35.4   | 9.5%        |
| BM         | (30-60)   | 100.9  | 27.1%       |
| BH         | (60-80)   | 43.9   | 11.8%       |
| BVH        | (80-90)   | 3.2    | 0.9%        |
| UL         | (90-100)  | 0.6    | 0.2%        |
| UH         | (100-180) | 0.0    | 0.0%        |
| Total      |           | 371.7  | 100.0%      |
| BUG Rating | B0 U1 G0  |        |             |