

## **Indoor Distribution Test Report**

# **Spectrum Lighting Inc.**

994 Jefferson Street  
Fall River, MA 02721  
+1.508.678.2303

## **Spectrum Lighting Photometric Lab**

### **Luminaire**

CY0820GV 15L 35K XX XX MW

Nom 8" diam x 20" H cylindrical shaped decorative luminaire

### **Test Number**

SP-00990\_M-15L

### **Test Date**

12/24/2019

The results contained in this report pertain only to this IES file.

### Summary of Results

#### Power

|             |      |
|-------------|------|
| Input Watts | 10 W |
|-------------|------|

#### Lumen Output

|               |            |
|---------------|------------|
| Output Lumens | 1192       |
| Efficacy      | 119.2 lm/W |

#### Luminous Dimensions

|                 |       |
|-----------------|-------|
| 0° - 180° Size  | -0.67 |
| 90° - 270° Size | -0.67 |
| Height          | 1.67  |

#### Spacing Criterion

|                           |      |
|---------------------------|------|
| Two luminaires, plane 0°  | 0.52 |
| Two luminaires, plane 90° | 0.51 |
| Four luminaires           | 0.6  |

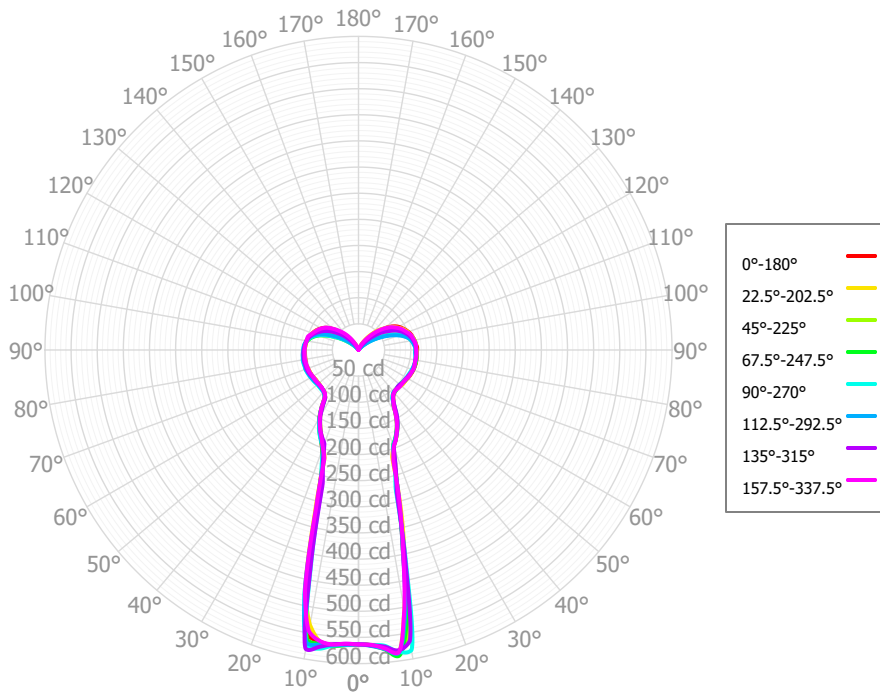
#### Full Beam Angle

|            |     |
|------------|-----|
| 0° - 180°  | 30° |
| 90° - 270° | 29° |

### IES File Header Contents

| Keyword   | Value   |
|-----------|---|
| TEST      | SP-00990_M-15L  |
| TESTLAB   | Spectrum Lighting Photometric Lab, VLS-245-981              |
| MANUFAC   | Spectrum Lighting   |
| TESTDATE  | 12/24/2019  |
| ISSUEDATE | 4/7/2020  |
| LUMCAT    | CY0820GV 15L 35K XX XX MW                                   |
| LUMINAIRE | Nom 8" diam x 20" H cylindrical shaped decorative luminaire |
| LAMPCAT   | N/A   |
| LAMP      | N/A   |
| OTHER     | CCT Output Multipliers: 27K x 0.97, 30K x 0.99, 40K x 1.03  |
| OTHER     | Total luminaire wattage is approximate                      |
| OTHER     | This report prepared by Spectrum Lighting, scaled from 27L  |

### Candela Polar Plot



### Zonal Lumen Summary

| Zone            | Lumens | % Fixture | Zone              | Lumens   | % Fixture |
|-----------------|--------|-----------|-------------------|----------|-----------|
| 0.00° - 10.00°  | 54.87  | 4.60%     | 90.00° - 100.00°  | 115.43   | 9.68%     |
| 10.00° - 20.00° | 87.27  | 7.32%     | 100.00° - 110.00° | 103.80   | 8.71%     |
| 20.00° - 30.00° | 79.12  | 6.64%     | 100.00° - 120.00° | 183.50   | 15.39%    |
| 30.00° - 40.00° | 74.02  | 6.21%     | 120.00° - 130.00° | 50.59    | 4.24%     |
| 40.00° - 50.00° | 79.81  | 6.70%     | 130.00° - 140.00° | 25.24    | 2.12%     |
| 50.00° - 60.00° | 93.00  | 7.80%     | 140.00° - 150.00° | 9.00     | 0.76%     |
| 60.00° - 70.00° | 105.76 | 8.87%     | 150.00° - 160.00° | 1.82     | 0.15%     |
| 70.00° - 80.00° | 114.65 | 9.62%     | 160.00° - 170.00° | 0.28     | 0.02%     |
| 80.00° - 90.00° | 117.55 | 9.86%     | 170.00° - 180.00° | 0.07     | 0.01%     |
| 0.00° - 90.00°  | 806.07 | 67.62%    | 0.00° - 180.00°   | 1,192.00 | 100.00%   |

### Candela Distribution

|         | 0.00°  | 22.50° | 45.00° | 67.50° | 90.00° | 112.50° | 135.00° | 157.50° | 180.00° | 202.50° | 225.00° | 247.50° | 270.00° | 292.50° | 315.00° | 337.50° | 360.00° |
|---------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0.00°   | 563.43 | 563.43 | 563.43 | 563.43 | 563.43 | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  | 563.43  |
| 2.50°   | 565.60 | 566.20 | 565.50 | 565.96 | 565.24 | 564.46  | 563.58  | 562.48  | 564.27  | 563.96  | 565.29  | 564.93  | 565.34  | 567.00  | 565.79  | 564.89  | 565.60  |
| 5.00°   | 572.56 | 574.53 | 570.81 | 574.57 | 568.14 | 567.38  | 565.15  | 565.80  | 567.09  | 567.57  | 568.95  | 568.53  | 568.04  | 574.46  | 569.88  | 573.30  | 572.56  |
| 7.50°   | 584.28 | 584.41 | 584.55 | 590.67 | 582.41 | 568.99  | 572.97  | 562.16  | 563.18  | 562.80  | 567.72  | 567.49  | 576.39  | 585.63  | 579.71  | 584.40  | 584.28  |
| 10.00°  | 519.29 | 505.10 | 553.44 | 531.69 | 583.35 | 569.27  | 581.09  | 546.44  | 553.82  | 534.52  | 565.43  | 563.43  | 574.36  | 514.75  | 565.47  | 505.05  | 519.29  |
| 12.50°  | 392.32 | 408.79 | 407.14 | 397.26 | 422.58 | 478.10  | 422.63  | 473.22  | 458.56  | 470.93  | 431.76  | 457.92  | 418.65  | 390.82  | 414.88  | 393.49  | 392.32  |
| 15.00°  | 298.35 | 311.80 | 289.99 | 297.74 | 275.15 | 306.55  | 264.69  | 314.48  | 302.72  | 321.87  | 276.55  | 295.49  | 274.53  | 299.86  | 283.69  | 304.47  | 298.35  |
| 17.50°  | 228.03 | 214.72 | 235.70 | 229.39 | 232.65 | 220.95  | 227.09  | 217.49  | 228.23  | 216.04  | 229.71  | 226.62  | 234.88  | 227.71  | 237.03  | 222.03  | 228.03  |
| 20.00°  | 195.20 | 196.64 | 196.84 | 193.83 | 194.78 | 200.52  | 191.05  | 199.53  | 202.97  | 198.40  | 196.45  | 202.34  | 198.94  | 196.24  | 197.84  | 197.14  | 195.20  |
| 22.50°  | 185.43 | 186.09 | 186.18 | 183.53 | 184.83 | 185.48  | 181.41  | 184.39  | 186.78  | 182.92  | 183.15  | 186.96  | 187.96  | 184.50  | 185.72  | 186.32  | 185.43  |
| 25.00°  | 173.91 | 172.77 | 174.59 | 171.73 | 174.31 | 174.08  | 171.52  | 172.45  | 175.35  | 171.20  | 171.46  | 175.28  | 176.59  | 172.67  | 173.62  | 172.86  | 173.91  |
| 27.50°  | 161.46 | 159.28 | 161.52 | 158.95 | 161.16 | 161.47  | 159.12  | 160.33  | 162.39  | 159.26  | 159.02  | 162.75  | 163.33  | 160.80  | 161.58  | 158.88  | 161.46  |
| 30.00°  | 144.52 | 142.10 | 146.20 | 142.84 | 146.74 | 148.16  | 145.90  | 148.04  | 148.74  | 146.98  | 146.55  | 149.93  | 148.74  | 144.03  | 147.68  | 142.03  | 144.52  |
| 32.50°  | 125.50 | 124.98 | 127.78 | 124.78 | 127.70 | 131.48  | 127.10  | 132.45  | 131.41  | 132.47  | 128.49  | 132.06  | 128.95  | 125.54  | 129.21  | 124.76  | 125.50  |
| 35.00°  | 115.59 | 116.70 | 115.03 | 114.90 | 112.21 | 113.16  | 110.66  | 114.07  | 112.69  | 115.04  | 110.77  | 112.78  | 112.65  | 115.54  | 114.90  | 116.28  | 115.59  |
| 37.50°  | 109.19 | 108.71 | 109.05 | 109.08 | 107.72 | 106.38  | 106.70  | 105.09  | 106.04  | 105.11  | 106.80  | 106.55  | 107.89  | 108.00  | 109.48  | 108.70  | 109.19  |
| 40.00°  | 106.52 | 106.96 | 105.48 | 106.50 | 104.55 | 104.35  | 103.22  | 103.17  | 103.16  | 103.70  | 103.01  | 103.39  | 104.29  | 105.80  | 105.61  | 106.37  | 106.52  |
| 42.50°  | 105.03 | 105.33 | 104.46 | 105.29 | 104.74 | 103.16  | 101.68  | 101.70  | 101.71  | 102.23  | 101.99  | 102.68  | 103.88  | 104.84  | 104.52  | 104.36  | 105.03  |
| 45.00°  | 104.32 | 104.98 | 104.07 | 104.25 | 104.49 | 102.25  | 100.48  | 100.53  | 100.63  | 100.72  | 100.99  | 102.43  | 103.47  | 103.92  | 103.59  | 104.93  | 104.32  |
| 47.50°  | 103.81 | 104.84 | 104.26 | 103.28 | 103.29 | 101.87  | 100.40  | 100.05  | 100.22  | 99.80   | 100.12  | 101.92  | 103.09  | 103.00  | 102.90  | 105.55  | 103.81  |
| 50.00°  | 104.72 | 106.13 | 104.28 | 103.46 | 102.97 | 101.64  | 100.45  | 99.96   | 99.94   | 99.39   | 99.51   | 101.37  | 103.02  | 103.69  | 103.10  | 105.60  | 104.72  |
| 52.50°  | 105.93 | 107.21 | 104.15 | 103.97 | 104.29 | 102.50  | 100.89  | 100.19  | 99.73   | 99.52   | 100.56  | 102.00  | 103.57  | 104.60  | 104.52  | 105.66  | 105.93  |
| 55.00°  | 106.69 | 107.13 | 104.96 | 105.01 | 105.24 | 103.62  | 101.28  | 100.59  | 99.53   | 100.06  | 101.40  | 102.74  | 104.06  | 104.90  | 105.62  | 105.70  | 106.69  |
| 57.50°  | 107.38 | 107.22 | 106.43 | 106.18 | 105.62 | 104.43  | 101.52  | 100.84  | 100.30  | 100.84  | 101.21  | 103.26  | 104.43  | 105.13  | 106.34  | 105.88  | 107.38  |
| 60.00°  | 108.42 | 108.09 | 107.41 | 106.96 | 106.02 | 105.18  | 102.14  | 101.04  | 101.18  | 101.78  | 101.31  | 103.77  | 105.05  | 106.38  | 107.02  | 107.51  | 108.42  |
| 62.50°  | 109.50 | 108.94 | 108.09 | 107.67 | 106.45 | 105.58  | 103.52  | 101.76  | 101.68  | 102.17  | 102.61  | 104.77  | 106.01  | 107.69  | 107.66  | 109.00  | 109.50  |
| 65.00°  | 110.29 | 109.71 | 108.95 | 108.72 | 107.06 | 105.93  | 104.65  | 102.65  | 102.16  | 102.25  | 103.79  | 105.78  | 106.85  | 108.48  | 108.77  | 109.30  | 110.29  |
| 67.50°  | 111.05 | 110.46 | 109.90 | 109.82 | 107.88 | 106.60  | 105.37  | 103.03  | 102.52  | 102.70  | 104.58  | 106.67  | 107.53  | 109.25  | 110.30  | 109.72  | 111.05  |
| 70.00°  | 111.51 | 111.15 | 110.60 | 110.89 | 108.76 | 107.29  | 105.80  | 103.26  | 102.88  | 103.35  | 105.18  | 107.50  | 107.87  | 109.59  | 111.01  | 110.87  | 111.51  |
| 72.50°  | 111.95 | 111.68 | 111.17 | 111.96 | 109.68 | 107.20  | 105.81  | 103.43  | 103.63  | 104.11  | 105.28  | 107.10  | 107.85  | 109.93  | 111.07  | 111.72  | 111.95  |
| 75.00°  | 112.30 | 111.82 | 111.08 | 112.04 | 110.46 | 107.07  | 105.96  | 103.60  | 104.34  | 104.92  | 105.35  | 106.72  | 108.09  | 110.17  | 111.01  | 111.20  | 112.30  |
| 77.50°  | 112.63 | 111.92 | 110.74 | 112.07 | 111.13 | 107.21  | 106.29  | 103.80  | 103.80  | 104.57  | 105.31  | 106.55  | 108.60  | 110.37  | 110.88  | 110.76  | 112.63  |
| 80.00°  | 112.36 | 111.94 | 111.18 | 111.97 | 111.08 | 107.36  | 106.30  | 104.00  | 103.28  | 103.81  | 105.11  | 106.30  | 108.40  | 110.15  | 111.05  | 110.63  | 112.36  |
| 82.50°  | 112.09 | 111.70 | 111.87 | 111.86 | 110.47 | 107.21  | 105.92  | 103.65  | 103.05  | 103.34  | 104.63  | 105.47  | 107.59  | 109.88  | 111.42  | 110.63  | 112.09  |
| 85.00°  | 111.95 | 110.99 | 111.79 | 110.65 | 109.87 | 107.03  | 105.66  | 103.22  | 102.83  | 102.95  | 104.04  | 104.76  | 107.01  | 109.25  | 111.04  | 110.98  | 111.95  |
| 87.50°  | 111.85 | 110.52 | 111.53 | 109.51 | 109.28 | 106.19  | 105.52  | 103.09  | 102.62  | 103.01  | 103.27  | 104.70  | 106.60  | 108.74  | 110.28  | 111.11  | 111.85  |
| 90.00°  | 112.16 | 110.42 | 111.07 | 109.57 | 109.14 | 105.40  | 104.91  | 102.98  | 102.48  | 103.18  | 102.69  | 104.58  | 106.00  | 108.87  | 110.11  | 110.68  | 112.16  |
| 92.50°  | 112.24 | 110.09 | 110.57 | 109.52 | 109.26 | 105.10  | 103.91  | 102.61  | 102.79  | 102.43  | 102.41  | 104.26  | 105.29  | 108.65  | 110.19  | 110.35  | 112.24  |
| 95.00°  | 110.89 | 109.48 | 110.36 | 108.29 | 107.88 | 104.62  | 102.97  | 102.21  | 102.90  | 101.50  | 101.94  | 103.66  | 104.22  | 106.84  | 109.44  | 110.22  | 110.89  |
| 97.50°  | 109.57 | 108.97 | 110.19 | 106.84 | 105.71 | 102.73  | 102.08  | 101.61  | 102.14  | 101.18  | 101.21  | 102.09  | 102.94  | 104.99  | 108.39  | 109.60  | 109.57  |
| 100.00° | 108.38 | 108.59 | 108.81 | 103.64 | 103.04 | 100.80  | 100.79  | 101.00  | 101.25  | 100.94  | 99.70   | 100.03  | 100.65  | 103.00  | 106.54  | 108.09  | 108.38  |
| 102.50° | 107.14 | 107.23 | 107.28 | 100.31 | 100.16 | 98.58   | 99.24   | 100.57  | 99.86   | 99.68   | 97.34   | 96.57   | 97.89   | 100.14  | 104.44  | 106.55  | 107.14  |
| 105.00° | 105.70 | 104.86 | 103.57 | 96.16  | 96.09  | 95.88   | 96.96   | 99.98   | 98.25   | 98.32   | 94.72   | 92.58   | 93.87   | 94.82   | 101.64  | 104.98  | 105.70  |
| 107.50° | 103.99 | 102.56 | 99.70  | 91.55  | 91.58  | 91.09   | 94.27   | 96.72   | 95.97   | 95.97   | 91.85   | 87.31   | 89.36   | 88.92   | 98.66   | 102.59  | 103.99  |
| 110.00° | 101.39 | 100.32 | 95.92  | 84.88  | 84.75  | 85.66   | 90.67   | 93.51   | 93.73   | 93.56   | 88.58   | 81.14   | 82.57   | 81.64   | 94.84   | 99.10   | 101.39  |
| 112.50° | 98.64  | 97.54  | 92.14  | 77.73  | 77.18  | 77.98   | 86.63   | 90.81   | 91.57   | 91.01   | 84.98   | 73.13   | 75.01   | 73.87   | 90.86   | 95.86   | 98.64   |

### Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

|            |            |       |       |       |       |       |       |       |       |       |       |       |     |     |     |     |     |     |
|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|
| <b>RCR</b> | <b>pfc</b> | 20%   | 20%   | 20%   | 20%   | 20%   | 20%   | 20%   | 20%   | 20%   | 20%   | 20%   | 20% | 20% | 20% | 20% | 20% | 0%  |
|            | <b>pcc</b> | 80%   | 80%   | 80%   | 80%   | 70%   | 70%   | 70%   | 70%   | 50%   | 50%   | 50%   | 30% | 30% | 30% | 10% | 10% | 0%  |
|            | <b>pw</b>  | 70%   | 50%   | 30%   | 10%   | 70%   | 50%   | 30%   | 10%   | 50%   | 30%   | 10%   | 50% | 30% | 10% | 50% | 30% | 30% |
|            | <b>0</b>   | 1,327 | 1,327 | 1,327 | 1,327 | 1,251 | 1,251 | 1,251 | 1,251 | 1,110 | 1,110 | 1,110 | 981 | 981 | 981 | 862 | 862 | 862 |
|            | <b>1</b>   | 1,164 | 1,090 | 1,023 | 963   | 1,090 | 1,024 | 965   | 911   | 901   | 855   | 812   | 789 | 752 | 719 | 685 | 657 | 631 |
|            | <b>2</b>   | 1,047 | 934   | 841   | 763   | 978   | 878   | 795   | 724   | 773   | 706   | 648   | 675 | 622 | 576 | 585 | 544 | 508 |
|            | <b>3</b>   | 952   | 817   | 712   | 628   | 889   | 768   | 674   | 597   | 677   | 601   | 538   | 593 | 532 | 481 | 514 | 466 | 431 |
|            | <b>4</b>   | 872   | 724   | 615   | 532   | 814   | 682   | 584   | 507   | 603   | 523   | 459   | 530 | 465 | 412 | 462 | 410 | 379 |
|            | <b>5</b>   | 804   | 649   | 540   | 460   | 751   | 613   | 514   | 440   | 544   | 463   | 400   | 480 | 413 | 361 | 420 | 366 | 340 |
|            | <b>6</b>   | 745   | 587   | 481   | 405   | 697   | 555   | 458   | 388   | 495   | 415   | 354   | 439 | 372 | 322 | 386 | 332 | 290 |
|            | <b>7</b>   | 694   | 535   | 433   | 361   | 650   | 507   | 413   | 346   | 454   | 375   | 318   | 405 | 339 | 290 | 358 | 304 | 263 |
|            | <b>8</b>   | 648   | 491   | 393   | 325   | 609   | 467   | 376   | 313   | 420   | 343   | 288   | 376 | 311 | 264 | 334 | 281 | 241 |
|            | <b>9</b>   | 608   | 454   | 359   | 295   | 572   | 432   | 345   | 285   | 390   | 316   | 264   | 351 | 288 | 243 | 314 | 261 | 223 |
|            | <b>10</b>  | 573   | 422   | 331   | 271   | 539   | 402   | 318   | 262   | 365   | 293   | 243   | 329 | 268 | 225 | 296 | 244 | 207 |

### Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|------------|-------------|---------------|
| 5.5 ft     | 18.6 fc     | 3.0 ft        |
| 6.5 ft     | 13.3 fc     | 3.5 ft        |
| 7.5 ft     | 10.0 fc     | 4.1 ft        |
| 8.0 ft     | 8.8 fc      | 4.3 ft        |
| 10.0 ft    | 5.6 fc      | 5.4 ft        |
| 12.0 ft    | 3.9 fc      | 6.5 ft        |
| 14.0 ft    | 2.9 fc      | 7.6 ft        |
| 16.0 ft    | 2.2 fc      | 8.7 ft        |
| 20.0 ft    | 1.4 fc      | 10.9 ft       |
| 24.0 ft    | 1.0 fc      | 13.0 ft       |
| 28.0 ft    | 0.7 fc      | 15.2 ft       |

### Average Luminaire Luminance [cd/m²]

|               | 0.00°  | 45.00° | 90.00° |
|---------------|--------|--------|--------|
| <b>0.00°</b>  | 17,202 | 17,202 | 17,202 |
| <b>45.00°</b> | 1,079  | 1,077  | 1,081  |
| <b>55.00°</b> | 1,026  | 1,010  | 1,013  |
| <b>65.00°</b> | 1,021  | 1,008  | 991    |
| <b>75.00°</b> | 1,031  | 1,020  | 1,014  |
| <b>85.00°</b> | 1,052  | 1,051  | 1,033  |

### UGR CIE 190:2010

| Ceiling reflectance |     | 0.7              | 0.7 | 0.5 | 0.5 | 0.3 | 0.7            | 0.7 | 0.5 | 0.5 | 0.3 |
|---------------------|-----|------------------|-----|-----|-----|-----|----------------|-----|-----|-----|-----|
| Wall reflectance    |     | 0.5              | 0.3 | 0.5 | 0.3 | 0.3 | 0.5            | 0.3 | 0.5 | 0.3 | 0.3 |
| Plane reflectance   |     | 0.2              | 0.2 | 0.2 | 0.2 | 0.2 | 0.2            | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions     |     | Viewed crosswise |     |     |     |     | Viewed endwise |     |     |     |     |
| 2H                  | 2H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 3H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 4H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 6H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 8H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 12H | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
| 4H                  | 2H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 3H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 4H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 6H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 8H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 12H | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
| 8H                  | 4H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 6H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 8H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 12H | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
| 12H                 | 4H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 6H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |
|                     | 8H  | -                | -   | -   | -   | -   | -              | -   | -   | -   | -   |

Corrected UGR values based on total output lumens

SHR = 1.0