

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
Fall River, MA 02721
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Spectrum Lighting Photometric Lab

Luminaire

CR2 835 15 xx xx RD2XF RB2BSA3 xx xx

Nom 2.5 inch dia cylinder with xtra wide flood optic and 6 inch acrylic style bezel

Test Number

SP-01275_8

Test Date

10/4/2021

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

Summary of Results

Power

| | |
|-------------|--------|
| Input Watts | 19.5 W |
|-------------|--------|

Lumen Output

| | |
|---------------|------------|
| Output Lumens | 976 |
| Efficacy | 50.04 lm/W |

Luminous Dimensions

| | |
|-----------------|-------|
| 0° - 180° Size | -0.21 |
| 90° - 270° Size | -0.21 |
| Height | 0.42 |

Spacing Criterion

| | |
|---------------------------|------|
| Two luminaires, plane 0° | 0.24 |
| Two luminaires, plane 90° | 0.23 |
| Four luminaires | 0.2 |

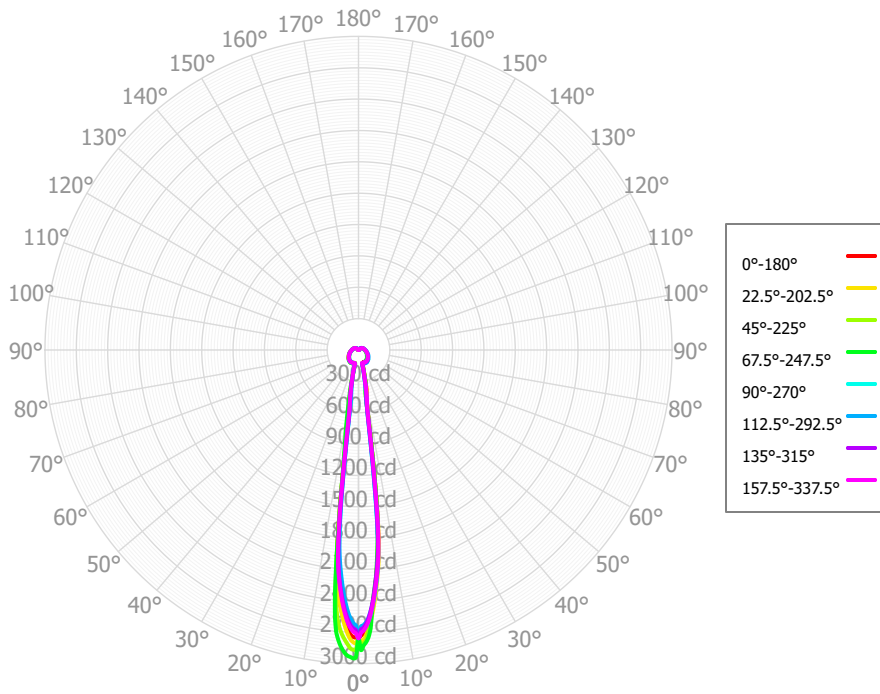
Full Beam Angle

| | |
|------------|-----|
| 0° - 180° | 13° |
| 90° - 270° | 13° |

IES File Header Contents

| Keyword | Value |
|-----------|---|
| TEST | SP-01275_8 |
| TESTLAB | Spectrum Lighting Photometric Lab, VLS-245-981 |
| MANUFAC | Spectrum Lighting |
| TESTDATE | 10/4/2021 |
| ISSUEDATE | 11/5/2021 |
| LUMCAT | CR2 835 15 xx xx RD2XF RB2BSA3 xx xx |
| LUMINAIRE | Nom 2.5 inch dia cylinder with xtra wide flood optic and 6 inch acrylic style bezel |
| OTHER | Beam Angle: 14 deg |
| LAMPCAT | N/A |
| LAMP | N/A, 6mm LES |
| OTHER | 80 CRI, 3500K tested |
| OTHER | LER (luminaire efficacy) = 50 lms / watt |
| OTHER | CCT Output Multipliers: 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0 |
| OTHER | CCT Output Multipliers: 927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87 |
| OTHER | Total luminaire wattages are approximate |
| OTHER | This report prepared by Spectrum Lighting |
| _CRI | 80+ |
| _CCTMULT | 822 x 0.75, 827 x 0.93, 830 x 1.0, 840 x 1.0 |
| _CCTMULTA | 927 x 0.81, 930 x 0.81, 935 x 0.81, 940 x 0.87 |
| _LAMPMULT | N/A |

Candela Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % Fixture | Zone | Lumens | % Fixture |
|-----------------|--------|-----------|-------------------|--------|-----------|
| 0.00° - 10.00° | 131.94 | 13.52% | 90.00° - 100.00° | 63.70 | 6.53% |
| 10.00° - 20.00° | 53.92 | 5.53% | 100.00° - 110.00° | 52.57 | 5.39% |
| 20.00° - 30.00° | 62.45 | 6.40% | 100.00° - 120.00° | 93.57 | 9.59% |
| 30.00° - 40.00° | 84.20 | 8.63% | 120.00° - 130.00° | 23.22 | 2.38% |
| 40.00° - 50.00° | 96.60 | 9.90% | 130.00° - 140.00° | 7.74 | 0.79% |
| 50.00° - 60.00° | 98.96 | 10.14% | 140.00° - 150.00° | 1.63 | 0.17% |
| 60.00° - 70.00° | 95.25 | 9.76% | 150.00° - 160.00° | 0.74 | 0.08% |
| 70.00° - 80.00° | 86.23 | 8.84% | 160.00° - 170.00° | 0.44 | 0.05% |
| 80.00° - 90.00° | 75.08 | 7.69% | 170.00° - 180.00° | 0.14 | 0.01% |
| 0.00° - 90.00° | 784.64 | 80.41% | 0.00° - 180.00° | 975.80 | 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° | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 | 2757.82 |
| 0.50° | 2734.27 | 2794.42 | 2828.09 | 2873.24 | 2694.41 | 2638.09 | 2683.22 | 2713.00 | 2754.11 | 2807.22 | 2867.88 | 2945.00 | 2698.61 | 2645.73 | 2675.86 | 2706.19 | 2734.27 |
| 1.00° | 2711.52 | 2772.60 | 2804.55 | 2827.87 | 2675.17 | 2619.09 | 2665.80 | 2697.80 | 2747.41 | 2797.76 | 2868.08 | 2950.72 | 2683.52 | 2634.45 | 2657.79 | 2687.60 | 2711.52 |
| 1.50° | 2678.21 | 2731.90 | 2776.34 | 2797.08 | 2644.35 | 2586.14 | 2644.02 | 2670.71 | 2730.24 | 2776.24 | 2859.08 | 2939.11 | 2656.19 | 2611.94 | 2625.73 | 2655.13 | 2678.21 |
| 2.00° | 2625.63 | 2674.55 | 2684.84 | 2750.67 | 2604.59 | 2542.13 | 2605.64 | 2635.15 | 2696.92 | 2737.45 | 2826.65 | 2929.36 | 2616.73 | 2576.85 | 2583.05 | 2611.78 | 2625.63 |
| 2.50° | 2552.56 | 2606.12 | 2580.46 | 2666.65 | 2547.82 | 2482.33 | 2555.23 | 2585.11 | 2650.70 | 2684.58 | 2791.41 | 2908.69 | 2563.66 | 2523.15 | 2524.38 | 2551.98 | 2552.56 |
| 3.00° | 2467.34 | 2529.17 | 2482.83 | 2492.94 | 2478.01 | 2411.19 | 2494.07 | 2518.82 | 2596.99 | 2622.25 | 2754.06 | 2874.82 | 2491.89 | 2457.69 | 2448.94 | 2475.27 | 2467.34 |
| 3.50° | 2374.39 | 2441.08 | 2389.62 | 2352.95 | 2397.77 | 2329.48 | 2421.96 | 2445.81 | 2532.26 | 2550.47 | 2709.55 | 2834.12 | 2407.85 | 2382.76 | 2361.96 | 2389.79 | 2374.39 |
| 4.00° | 2273.82 | 2342.54 | 2288.53 | 2254.69 | 2312.96 | 2237.75 | 2339.85 | 2362.04 | 2456.99 | 2469.46 | 2651.11 | 2780.21 | 2315.89 | 2295.42 | 2263.04 | 2298.58 | 2273.82 |
| 4.50° | 2171.39 | 2238.84 | 2169.09 | 2158.46 | 2215.02 | 2139.68 | 2253.05 | 2268.14 | 2372.66 | 2376.46 | 2571.26 | 2710.90 | 2211.82 | 2199.27 | 2159.00 | 2203.49 | 2171.39 |
| 5.00° | 2064.30 | 2131.51 | 2045.20 | 2022.90 | 2107.43 | 2033.20 | 2153.47 | 2165.49 | 2327.40 | 2370.95 | 2455.35 | 2578.65 | 2094.20 | 2092.61 | 2057.19 | 2100.44 | 2064.30 |
| 5.50° | 1951.50 | 2016.74 | 1921.43 | 1890.14 | 1970.92 | 1899.53 | 2022.07 | 2039.30 | 2142.00 | 2137.56 | 2278.30 | 2350.49 | 1953.92 | 1956.46 | 1938.47 | 1982.63 | 1951.50 |
| 6.00° | 1810.37 | 1862.09 | 1790.89 | 1758.31 | 1769.88 | 1711.79 | 1822.57 | 1860.83 | 1941.73 | 1942.98 | 2008.45 | 2026.72 | 1753.84 | 1747.74 | 1775.89 | 1825.61 | 1810.37 |
| 6.50° | 1606.26 | 1637.12 | 1605.77 | 1600.96 | 1475.35 | 1446.14 | 1536.99 | 1596.90 | 1652.21 | 1664.28 | 1670.46 | 1668.44 | 1474.76 | 1455.26 | 1526.89 | 1585.16 | 1606.26 |
| 7.00° | 1325.70 | 1339.59 | 1341.72 | 1365.22 | 1151.93 | 1130.26 | 1205.18 | 1271.75 | 1318.39 | 1333.24 | 1325.76 | 1342.33 | 1152.62 | 1122.49 | 1209.70 | 1275.97 | 1325.70 |
| 7.50° | 1021.91 | 1014.18 | 1034.85 | 1068.84 | 848.98 | 831.29 | 902.94 | 960.59 | 1007.61 | 1017.18 | 1042.85 | 1106.19 | 850.71 | 829.23 | 900.49 | 958.49 | 1021.91 |
| 8.00° | 748.38 | 744.66 | 742.75 | 788.05 | 640.23 | 613.45 | 691.94 | 723.72 | 781.40 | 780.95 | 863.24 | 962.40 | 633.62 | 633.77 | 662.03 | 711.72 | 748.38 |
| 8.50° | 576.67 | 587.80 | 540.67 | 567.45 | 543.42 | 498.40 | 582.52 | 590.36 | 654.70 | 651.61 | 759.15 | 858.29 | 523.78 | 532.25 | 531.56 | 576.40 | 576.67 |
| 9.00° | 505.01 | 517.76 | 444.40 | 450.72 | 495.43 | 450.45 | 526.25 | 531.45 | 586.16 | 585.24 | 681.64 | 767.64 | 476.94 | 477.76 | 480.46 | 523.38 | 505.01 |
| 9.50° | 474.24 | 485.73 | 409.21 | 406.07 | 460.67 | 419.00 | 485.86 | 491.67 | 533.80 | 537.26 | 614.12 | 680.25 | 445.81 | 436.09 | 452.10 | 491.55 | 474.24 |
| 10.00° | 455.57 | 461.33 | 387.28 | 389.67 | 424.93 | 392.66 | 449.68 | 455.92 | 485.02 | 492.68 | 546.55 | 593.22 | 414.93 | 400.66 | 423.41 | 457.78 | 455.57 |
| 10.50° | 436.12 | 438.11 | 371.87 | 375.00 | 388.84 | 368.61 | 412.34 | 418.38 | 438.49 | 446.55 | 478.83 | 517.53 | 381.97 | 367.90 | 393.31 | 421.29 | 436.12 |
| 11.00° | 411.76 | 410.98 | 356.18 | 363.64 | 353.06 | 342.82 | 374.38 | 380.68 | 391.03 | 400.25 | 413.33 | 458.61 | 347.88 | 332.97 | 360.94 | 384.50 | 411.76 |
| 11.50° | 383.22 | 377.83 | 337.20 | 349.95 | 313.11 | 313.86 | 334.34 | 340.29 | 342.82 | 353.08 | 363.67 | 415.13 | 312.49 | 295.97 | 325.01 | 342.89 | 383.22 |
| 12.00° | 347.45 | 342.59 | 315.86 | 333.25 | 278.44 | 285.45 | 295.87 | 299.54 | 296.37 | 305.87 | 325.48 | 366.40 | 278.86 | 265.41 | 288.21 | 300.58 | 347.45 |
| 12.50° | 306.37 | 303.12 | 288.80 | 311.49 | 247.67 | 256.78 | 262.45 | 264.44 | 263.03 | 269.98 | 293.26 | 294.94 | 249.94 | 237.28 | 255.72 | 266.23 | 306.37 |
| 13.00° | 269.52 | 265.53 | 255.52 | 278.88 | 225.52 | 234.93 | 236.63 | 238.14 | 234.78 | 243.77 | 248.48 | 203.66 | 226.87 | 216.69 | 229.77 | 236.82 | 269.52 |
| 13.50° | 238.13 | 237.35 | 229.73 | 239.78 | 201.05 | 213.71 | 203.48 | 210.99 | 193.57 | 208.75 | 189.10 | 143.34 | 204.95 | 191.92 | 209.06 | 216.35 | 238.13 |
| 14.00° | 218.53 | 216.24 | 210.04 | 202.89 | 166.74 | 185.65 | 162.24 | 172.57 | 148.65 | 161.07 | 143.54 | 133.19 | 175.11 | 153.46 | 186.11 | 189.79 | 218.53 |
| 14.50° | 193.98 | 181.63 | 200.26 | 178.51 | 137.61 | 148.65 | 136.41 | 139.79 | 132.28 | 136.13 | 129.92 | 132.61 | 144.11 | 136.11 | 157.85 | 157.30 | 193.98 |
| 15.00° | 153.50 | 141.06 | 180.64 | 169.74 | 135.31 | 138.03 | 133.11 | 131.20 | 129.98 | 131.41 | 128.50 | 132.05 | 133.43 | 132.98 | 134.19 | 133.07 | 153.50 |
| 15.50° | 131.08 | 132.09 | 151.53 | 164.53 | 135.21 | 135.42 | 132.50 | 131.36 | 130.81 | 131.89 | 129.64 | 132.86 | 133.32 | 135.40 | 131.97 | 130.45 | 131.08 |
| 16.00° | 128.93 | 133.18 | 133.77 | 151.61 | 135.39 | 137.17 | 133.89 | 131.27 | 130.25 | 131.55 | 130.79 | 133.57 | 133.40 | 134.91 | 131.11 | 129.13 | 128.93 |
| 16.50° | 130.01 | 131.48 | 132.55 | 139.99 | 135.85 | 135.81 | 134.39 | 131.45 | 133.30 | 132.35 | 130.00 | 134.01 | 132.92 | 135.95 | 132.28 | 128.68 | 130.01 |
| 17.00° | 130.59 | 131.66 | 132.91 | 138.59 | 135.48 | 136.23 | 134.60 | 132.10 | 134.41 | 133.38 | 129.36 | 135.20 | 133.58 | 135.81 | 132.65 | 129.62 | 130.59 |
| 17.50° | 129.87 | 134.05 | 133.49 | 136.55 | 135.59 | 133.55 | 134.01 | 132.52 | 134.46 | 135.55 | 129.60 | 135.17 | 134.61 | 135.21 | 133.23 | 130.67 | 129.87 |
| 18.00° | 127.84 | 133.62 | 133.43 | 136.34 | 134.94 | 135.62 | 133.11 | 132.71 | 134.11 | 136.59 | 129.43 | 134.29 | 133.41 | 134.98 | 132.31 | 130.94 | 127.84 |
| 18.50° | 129.77 | 133.27 | 132.70 | 135.13 | 135.14 | 134.74 | 133.76 | 132.42 | 133.67 | 134.59 | 129.36 | 135.98 | 133.70 | 137.72 | 132.65 | 129.90 | 129.77 |
| 19.00° | 129.28 | 133.19 | 132.34 | 134.10 | 135.46 | 133.37 | 134.13 | 132.28 | 133.93 | 134.12 | 129.70 | 136.50 | 134.45 | 135.06 | 132.60 | 131.51 | 129.28 |
| 19.50° | 128.10 | 132.87 | 131.82 | 133.84 | 135.95 | 133.04 | 133.55 | 132.41 | 134.32 | 135.11 | 130.27 | 135.46 | 135.49 | 137.23 | 131.30 | 130.52 | 128.10 |
| 20.00° | 127.58 | 133.39 | 131.49 | 133.17 | 136.99 | 134.73 | 133.49 | 131.02 | 133.36 | 136.78 | 130.34 | 137.10 | 135.97 | 136.63 | 131.90 | 129.05 | 127.58 |
| 20.50° | 128.36 | 132.67 | 131.95 | 131.76 | 136.37 | 132.29 | 133.78 | 132.41 | 134.79 | 134.60 | 130.00 | 137.73 | 134.55 | 135.90 | 131.75 | 130.10 | 128.36 |
| 21.00° | 126.70 | 133.68 | 131.99 | 130.24 | 138.12 | 131.93 | 133.86 | 133.55 | 136.28 | 135.29 | 129.46 | 138.62 | 135.48 | 136.04 | 132.09 | 130.76 | 126.70 |
| 21.50° | 128.31 | 133.95 | 131.49 | 130.28 | 137.95 | 132.22 | 133.77 | 132.67 | 137.53 | 136.67 | 129.35 | 139.53 | 134.72 | 137.54 | 133.06 | 132.43 | 128.31 |
| 22.00° | 129.99 | 133.54 | 131.45 | 129.31 | 137.78 | 132.68 | 133.92 | 132.07 | 138.03 | 137.96 | 130.10 | 140.19 | 134.76 | 137.75 | 133.32 | 131.45 | 129.99 |
| 22.50° | 128.86 | 133.56 | 132.62 | 128.49 | 137.67 | 133.27 | 134.57 | 131.47 | 138.03 | 138.97 | 130.85 | 140.73 | 135.24 | 137.52 | 133.26 | 130.65 | 128.86 |

Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

| | | | | | | | | | | | | | | | | | | |
|------------|------------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RCR | pfc | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 0% |
| | pcc | 80% | 80% | 80% | 80% | 70% | 70% | 70% | 70% | 50% | 50% | 50% | 30% | 30% | 30% | 10% | 10% | 0% |
| | pw | 70% | 50% | 30% | 10% | 70% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 30% |
| | 0 | 1116 | 1116 | 1116 | 1116 | 1068 | 1068 | 1068 | 1068 | 978 | 978 | 978 | 896 | 896 | 896 | 820 | 820 | 785 |
| | 1 | 995 | 940 | 890 | 846 | 948 | 899 | 854 | 814 | 822 | 786 | 753 | 751 | 722 | 696 | 685 | 663 | 632 |
| | 2 | 903 | 817 | 746 | 686 | 859 | 782 | 718 | 663 | 716 | 664 | 618 | 655 | 613 | 576 | 599 | 565 | 539 |
| | 3 | 827 | 722 | 641 | 576 | 787 | 692 | 618 | 559 | 636 | 575 | 525 | 584 | 534 | 492 | 535 | 495 | 471 |
| | 4 | 763 | 647 | 563 | 498 | 726 | 622 | 544 | 484 | 573 | 508 | 457 | 528 | 474 | 431 | 486 | 442 | 422 |
| | 5 | 709 | 587 | 502 | 439 | 675 | 565 | 486 | 428 | 523 | 457 | 406 | 484 | 428 | 385 | 447 | 401 | 383 |
| | 6 | 661 | 537 | 454 | 394 | 631 | 518 | 441 | 385 | 482 | 416 | 367 | 448 | 392 | 349 | 416 | 368 | 353 |
| | 7 | 620 | 496 | 415 | 358 | 593 | 479 | 404 | 351 | 447 | 383 | 336 | 417 | 362 | 321 | 389 | 342 | 328 |
| | 8 | 584 | 461 | 383 | 330 | 559 | 446 | 374 | 323 | 418 | 355 | 310 | 392 | 337 | 298 | 367 | 320 | 308 |
| | 9 | 553 | 431 | 357 | 306 | 530 | 418 | 349 | 301 | 394 | 333 | 290 | 370 | 317 | 279 | 348 | 302 | 291 |
| | 10 | 525 | 406 | 335 | 287 | 504 | 394 | 327 | 282 | 372 | 313 | 273 | 351 | 300 | 263 | 332 | 287 | 277 |

Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|------------|-------------|---------------|
| 5.5 ft | 91.2 fc | 1.3 ft |
| 6.5 ft | 65.3 fc | 1.5 ft |
| 7.5 ft | 49.0 fc | 1.7 ft |
| 8.0 ft | 43.1 fc | 1.9 ft |
| 10.0 ft | 27.6 fc | 2.3 ft |
| 12.0 ft | 19.2 fc | 2.8 ft |
| 14.0 ft | 14.1 fc | 3.2 ft |
| 16.0 ft | 10.8 fc | 3.7 ft |
| 20.0 ft | 6.9 fc | 4.6 ft |
| 24.0 ft | 4.8 fc | 5.6 ft |
| 28.0 ft | 3.5 fc | 6.5 ft |

Average Luminaire Luminance [cd/m²]

| | 0.00° | 45.00° | 90.00° |
|---------------|--------|--------|--------|
| 0.00° | 857052 | 857052 | 857052 |
| 45.00° | 14955 | 14904 | 16107 |
| 55.00° | 12279 | 12328 | 13243 |
| 65.00° | 10363 | 10498 | 11051 |
| 75.00° | 8933 | 8991 | 9559 |
| 85.00° | 8013 | 7807 | 8322 |

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 energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0