

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

AP12XT 10L 35HK XX MWI
Nom 12" diam x 12" H Aluminum reflector pendant

Test Number

SP-00684_2_M-10L

Test Date

10/15/2019

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

Summary of Results

Power

| | |
|-------------|--------|
| Input Watts | 10.8 W |
|-------------|--------|

Lumen Output

| | |
|---------------|-----------|
| Output Lumens | 517 |
| Efficacy | 47.9 lm/W |

Luminous Dimensions

| | |
|-----------------|----|
| 0° - 180° Size | -1 |
| 90° - 270° Size | -1 |
| Height | 0 |

Spacing Criterion

| | |
|---------------------------|------|
| Two luminaires, plane 0° | 0.82 |
| Two luminaires, plane 90° | 0.82 |
| Four luminaires | 0.98 |

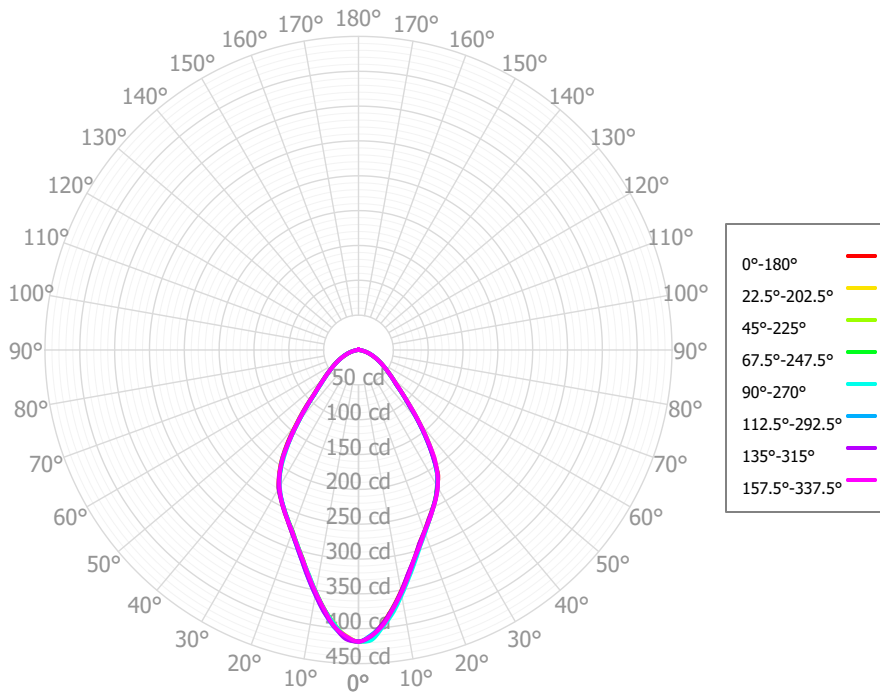
Full Beam Angle

| | |
|------------|-----|
| 0° - 180° | 66° |
| 90° - 270° | 65° |

IES File Header Contents

| Keyword | Value |
|-----------|--|
| TEST | SP-00684_2_M-10L |
| TESTLAB | Spectrum Lighting Photometric Lab, VLS-245-981 |
| MANUFAC | Spectrum Lighting |
| TESTDATE | 10/15/2019 |
| ISSUEDATE | 5/15/2020 |
| LUMCAT | AP12XT 10L 35HK XX MWI |
| LUMINAIRE | Nom 12" diam x 12" H Aluminum reflector pendant |
| OTHER | Matte White finish - Interior, Khatod closed sphere optic, Open aperture |
| OTHER | Beam Angle: 65.6 degrees |
| LAMPCAT | N/A |
| LAMP | N/A, 19mm LES |
| OTHER | LEDXT lumen output is the same for all available CCT's |
| OTHER | Total luminaire wattage is approximate |
| OTHER | This report prepared by Spectrum Lighting, scaled from 30L |

Candela Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % Fixture | Zone | Lumens | % Fixture |
|-----------------|--------|-----------|-------------------|--------|-----------|
| 0.00° - 10.00° | 36.95 | 7.14% | 90.00° - 100.00° | 0.50 | 0.10% |
| 10.00° - 20.00° | 87.39 | 16.89% | 100.00° - 110.00° | 0.46 | 0.09% |
| 20.00° - 30.00° | 115.99 | 22.42% | 100.00° - 120.00° | 0.91 | 0.18% |
| 30.00° - 40.00° | 115.14 | 22.26% | 120.00° - 130.00° | 0.39 | 0.08% |
| 40.00° - 50.00° | 71.69 | 13.86% | 130.00° - 140.00° | 0.36 | 0.07% |
| 50.00° - 60.00° | 44.16 | 8.54% | 140.00° - 150.00° | 0.29 | 0.06% |
| 60.00° - 70.00° | 27.12 | 5.24% | 150.00° - 160.00° | 0.22 | 0.04% |
| 70.00° - 80.00° | 13.02 | 2.52% | 160.00° - 170.00° | 0.13 | 0.03% |
| 80.00° - 90.00° | 3.00 | 0.58% | 170.00° - 180.00° | 0.05 | 0.01% |
| 0.00° - 90.00° | 514.45 | 99.45% | 0.00° - 180.00° | 517.30 | 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° | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 | 418.53 |
| 2.50° | 411.10 | 410.66 | 416.00 | 411.26 | 416.96 | 413.02 | 415.28 | 411.14 | 414.29 | 410.39 | 413.62 | 411.56 | 413.30 | 409.60 | 411.45 | 410.99 | 411.10 |
| 5.00° | 394.47 | 398.15 | 397.15 | 398.33 | 399.15 | 399.57 | 398.38 | 398.35 | 396.94 | 397.37 | 394.68 | 396.12 | 395.40 | 395.80 | 394.97 | 397.18 | 394.47 |
| 7.50° | 373.66 | 376.41 | 377.98 | 377.14 | 380.25 | 379.09 | 379.52 | 375.78 | 377.61 | 375.24 | 375.46 | 375.44 | 375.71 | 374.78 | 375.03 | 375.84 | 373.66 |
| 10.00° | 351.54 | 354.57 | 354.96 | 355.18 | 357.11 | 356.45 | 356.73 | 353.31 | 354.79 | 353.13 | 352.63 | 352.86 | 352.86 | 353.30 | 352.25 | 353.99 | 351.54 |
| 12.50° | 329.05 | 332.05 | 332.26 | 332.11 | 334.61 | 334.67 | 334.59 | 331.24 | 332.88 | 331.26 | 330.23 | 331.23 | 329.82 | 331.09 | 328.84 | 331.95 | 329.05 |
| 15.00° | 309.63 | 310.55 | 311.88 | 311.52 | 313.93 | 313.09 | 313.54 | 310.43 | 312.26 | 309.94 | 310.93 | 309.88 | 311.06 | 310.70 | 309.58 | 310.09 | 309.63 |
| 17.50° | 290.84 | 293.41 | 292.52 | 293.78 | 294.83 | 295.32 | 294.85 | 293.21 | 294.23 | 293.30 | 292.44 | 292.80 | 292.49 | 292.69 | 290.98 | 293.70 | 290.84 |
| 20.00° | 276.59 | 277.33 | 278.09 | 278.28 | 279.37 | 278.17 | 279.28 | 277.44 | 279.18 | 277.29 | 278.03 | 276.60 | 278.29 | 277.19 | 277.00 | 277.62 | 276.59 |
| 22.50° | 262.94 | 264.69 | 264.17 | 264.96 | 264.94 | 264.96 | 265.46 | 264.84 | 265.56 | 264.66 | 264.21 | 264.22 | 264.28 | 264.34 | 263.46 | 265.07 | 262.94 |
| 25.00° | 251.26 | 252.21 | 251.97 | 252.03 | 252.39 | 252.14 | 253.53 | 252.45 | 253.32 | 252.27 | 252.55 | 252.35 | 252.21 | 251.97 | 251.51 | 252.59 | 251.26 |
| 27.50° | 239.71 | 240.14 | 239.61 | 239.41 | 239.85 | 239.95 | 241.38 | 240.43 | 241.25 | 240.82 | 240.49 | 240.53 | 239.88 | 240.03 | 239.60 | 240.65 | 239.71 |
| 30.00° | 226.50 | 226.73 | 226.78 | 225.11 | 227.32 | 227.73 | 229.02 | 226.72 | 229.32 | 227.90 | 227.32 | 228.71 | 225.96 | 225.66 | 226.00 | 227.76 | 226.50 |
| 32.50° | 212.89 | 210.64 | 210.82 | 209.74 | 210.07 | 209.27 | 211.37 | 210.59 | 212.22 | 210.58 | 210.91 | 209.39 | 210.08 | 209.52 | 211.64 | 210.52 | 212.89 |
| 35.00° | 186.63 | 190.09 | 188.12 | 187.09 | 187.18 | 190.22 | 189.83 | 189.07 | 191.85 | 190.19 | 187.43 | 189.65 | 185.50 | 186.14 | 185.63 | 190.81 | 186.63 |
| 37.50° | 160.32 | 162.48 | 163.45 | 160.62 | 161.82 | 162.01 | 164.26 | 161.25 | 166.57 | 162.74 | 162.61 | 161.79 | 160.35 | 158.52 | 159.53 | 162.92 | 160.32 |
| 40.00° | 133.50 | 135.91 | 135.43 | 134.65 | 133.99 | 134.25 | 136.30 | 134.78 | 138.72 | 136.11 | 135.47 | 134.26 | 133.35 | 132.42 | 132.83 | 136.02 | 133.50 |
| 42.50° | 107.85 | 110.72 | 110.69 | 108.89 | 110.03 | 110.31 | 112.40 | 109.66 | 114.43 | 110.99 | 111.14 | 110.59 | 108.55 | 107.02 | 107.51 | 111.64 | 107.85 |
| 45.00° | 89.95 | 90.68 | 90.50 | 90.35 | 89.22 | 88.18 | 90.46 | 90.23 | 91.62 | 90.43 | 90.73 | 88.41 | 89.25 | 88.86 | 89.54 | 90.55 | 89.95 |
| 47.50° | 73.57 | 76.16 | 74.97 | 74.11 | 74.85 | 75.81 | 76.44 | 75.36 | 77.47 | 76.75 | 75.04 | 76.18 | 73.22 | 73.44 | 73.38 | 76.24 | 73.57 |
| 50.00° | 64.40 | 64.85 | 64.80 | 63.87 | 64.72 | 64.38 | 65.42 | 64.47 | 66.07 | 65.39 | 64.87 | 64.65 | 63.78 | 63.45 | 64.12 | 64.19 | 64.40 |
| 52.50° | 55.68 | 56.35 | 56.01 | 55.10 | 56.25 | 56.55 | 56.77 | 56.15 | 57.42 | 56.88 | 56.32 | 56.45 | 55.41 | 55.01 | 55.46 | 55.88 | 55.68 |
| 55.00° | 48.54 | 49.09 | 48.51 | 48.19 | 48.68 | 49.10 | 48.81 | 48.92 | 49.45 | 49.44 | 49.31 | 48.73 | 48.74 | 48.42 | 48.53 | 48.56 | 48.54 |
| 57.50° | 41.87 | 42.74 | 42.28 | 41.60 | 42.29 | 42.82 | 43.02 | 42.27 | 43.33 | 43.07 | 43.03 | 42.70 | 42.48 | 42.21 | 42.06 | 42.58 | 41.87 |
| 60.00° | 36.44 | 37.04 | 37.01 | 36.35 | 36.41 | 36.89 | 37.72 | 36.76 | 37.52 | 37.26 | 37.31 | 36.94 | 36.77 | 36.86 | 36.66 | 37.07 | 36.44 |
| 62.50° | 31.31 | 31.72 | 31.95 | 31.23 | 31.85 | 31.77 | 32.63 | 31.72 | 32.37 | 31.92 | 31.98 | 31.93 | 31.75 | 31.64 | 31.45 | 32.06 | 31.31 |
| 65.00° | 26.83 | 26.97 | 27.02 | 27.00 | 27.72 | 27.09 | 27.58 | 27.05 | 27.29 | 27.27 | 26.88 | 27.15 | 27.51 | 27.30 | 26.60 | 27.47 | 26.83 |
| 67.50° | 22.47 | 22.50 | 22.64 | 22.82 | 23.41 | 23.23 | 23.28 | 22.49 | 23.09 | 23.07 | 22.73 | 22.86 | 23.36 | 23.03 | 22.26 | 23.26 | 22.47 |
| 70.00° | 18.31 | 18.80 | 18.54 | 19.00 | 19.04 | 19.63 | 19.03 | 18.77 | 18.94 | 19.34 | 19.07 | 18.85 | 19.28 | 19.21 | 18.69 | 19.20 | 18.31 |
| 72.50° | 14.71 | 15.39 | 15.02 | 15.22 | 15.56 | 16.41 | 15.64 | 15.27 | 15.88 | 15.87 | 15.62 | 15.31 | 15.57 | 15.40 | 15.31 | 15.26 | 14.71 |
| 75.00° | 11.87 | 11.90 | 11.75 | 12.02 | 12.23 | 13.08 | 12.28 | 11.96 | 12.83 | 12.67 | 12.25 | 12.03 | 12.11 | 12.12 | 12.17 | 11.89 | 11.87 |
| 77.50° | 9.03 | 8.38 | 8.98 | 8.89 | 9.49 | 9.60 | 9.49 | 8.69 | 9.84 | 9.59 | 9.03 | 9.12 | 9.05 | 8.88 | 9.07 | 8.86 | 9.03 |
| 80.00° | 6.20 | 5.86 | 6.38 | 6.30 | 6.81 | 6.64 | 6.74 | 6.29 | 6.92 | 6.73 | 5.86 | 6.51 | 6.21 | 6.17 | 6.02 | 6.39 | 6.20 |
| 82.50° | 3.93 | 3.54 | 4.23 | 3.89 | 4.40 | 4.17 | 4.58 | 4.00 | 4.49 | 3.95 | 3.73 | 4.22 | 3.99 | 3.63 | 3.74 | 4.19 | 3.93 |
| 85.00° | 2.19 | 2.19 | 2.20 | 2.46 | 2.00 | 2.47 | 2.54 | 2.43 | 2.28 | 2.42 | 1.86 | 2.49 | 2.08 | 2.27 | 2.07 | 2.56 | 2.19 |
| 87.50° | 1.18 | 0.98 | 1.35 | 1.22 | 1.25 | 1.40 | 1.43 | 0.91 | 1.35 | 1.22 | 1.06 | 1.26 | 1.12 | 1.07 | 1.09 | 1.14 | 1.18 |
| 90.00° | 0.70 | 0.64 | 0.70 | 0.74 | 0.54 | 0.81 | 0.50 | 0.62 | 0.57 | 0.78 | 0.43 | 0.63 | 0.51 | 0.73 | 0.56 | 0.66 | 0.70 |
| 92.50° | 0.51 | 0.38 | 0.50 | 0.38 | 0.53 | 0.54 | 0.46 | 0.36 | 0.43 | 0.49 | 0.40 | 0.44 | 0.35 | 0.46 | 0.39 | 0.46 | 0.51 |
| 95.00° | 0.49 | 0.40 | 0.35 | 0.40 | 0.52 | 0.49 | 0.41 | 0.41 | 0.33 | 0.44 | 0.44 | 0.36 | 0.31 | 0.41 | 0.40 | 0.46 | 0.49 |
| 97.50° | 0.48 | 0.43 | 0.42 | 0.44 | 0.46 | 0.56 | 0.36 | 0.46 | 0.36 | 0.42 | 0.50 | 0.33 | 0.39 | 0.38 | 0.41 | 0.51 | 0.48 |
| 100.00° | 0.46 | 0.44 | 0.51 | 0.57 | 0.42 | 0.51 | 0.36 | 0.39 | 0.37 | 0.44 | 0.56 | 0.32 | 0.49 | 0.38 | 0.41 | 0.49 | 0.46 |
| 102.50° | 0.48 | 0.45 | 0.41 | 0.63 | 0.42 | 0.41 | 0.45 | 0.34 | 0.35 | 0.47 | 0.53 | 0.32 | 0.50 | 0.40 | 0.40 | 0.47 | 0.48 |
| 105.00° | 0.50 | 0.42 | 0.31 | 0.55 | 0.42 | 0.39 | 0.51 | 0.40 | 0.33 | 0.48 | 0.50 | 0.33 | 0.50 | 0.46 | 0.37 | 0.48 | 0.50 |
| 107.50° | 0.45 | 0.40 | 0.39 | 0.47 | 0.41 | 0.39 | 0.48 | 0.45 | 0.34 | 0.50 | 0.45 | 0.35 | 0.46 | 0.48 | 0.47 | 0.50 | 0.45 |
| 110.00° | 0.39 | 0.40 | 0.47 | 0.40 | 0.40 | 0.38 | 0.46 | 0.44 | 0.36 | 0.57 | 0.41 | 0.33 | 0.41 | 0.44 | 0.59 | 0.56 | 0.39 |
| 112.50° | 0.43 | 0.40 | 0.49 | 0.43 | 0.40 | 0.37 | 0.45 | 0.45 | 0.40 | 0.62 | 0.37 | 0.30 | 0.49 | 0.43 | 0.50 | 0.62 | 0.43 |

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 | 615 | 615 | 615 | 615 | 601 | 601 | 601 | 601 | 573 | 573 | 573 | 548 | 548 | 548 | 525 | 525 | 514 |
| | 1 | 576 | 557 | 540 | 525 | 562 | 545 | 530 | 516 | 523 | 511 | 500 | 503 | 493 | 484 | 485 | 477 | 469 |
| | 2 | 536 | 503 | 476 | 453 | 524 | 494 | 469 | 447 | 476 | 455 | 437 | 459 | 442 | 427 | 444 | 430 | 417 |
| | 3 | 500 | 456 | 423 | 396 | 488 | 448 | 418 | 393 | 434 | 407 | 386 | 420 | 398 | 379 | 407 | 389 | 380 |
| | 4 | 466 | 416 | 379 | 351 | 455 | 409 | 375 | 349 | 397 | 367 | 344 | 385 | 360 | 340 | 375 | 353 | 346 |
| | 5 | 436 | 381 | 343 | 315 | 426 | 375 | 340 | 313 | 365 | 334 | 310 | 355 | 328 | 306 | 346 | 322 | 316 |
| | 6 | 408 | 351 | 312 | 284 | 399 | 346 | 310 | 283 | 337 | 305 | 281 | 329 | 300 | 278 | 321 | 296 | 290 |
| | 7 | 383 | 324 | 286 | 259 | 375 | 320 | 284 | 258 | 312 | 280 | 256 | 305 | 276 | 254 | 299 | 273 | 268 |
| | 8 | 360 | 301 | 263 | 237 | 353 | 297 | 261 | 236 | 291 | 258 | 235 | 285 | 255 | 234 | 279 | 252 | 248 |
| | 9 | 340 | 280 | 243 | 218 | 333 | 277 | 242 | 218 | 271 | 239 | 217 | 266 | 237 | 216 | 261 | 234 | 230 |
| | 10 | 321 | 262 | 226 | 202 | 315 | 259 | 225 | 202 | 254 | 223 | 201 | 250 | 221 | 200 | 245 | 219 | 215 |

Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|------------|-------------|---------------|
| 5.5 ft | 13.8 fc | 7.1 ft |
| 6.5 ft | 9.9 fc | 8.4 ft |
| 7.5 ft | 7.4 fc | 9.7 ft |
| 8.0 ft | 6.5 fc | 10.3 ft |
| 10.0 ft | 4.2 fc | 12.9 ft |
| 12.0 ft | 2.9 fc | 15.5 ft |
| 14.0 ft | 2.1 fc | 18.1 ft |
| 16.0 ft | 1.6 fc | 20.7 ft |
| 20.0 ft | 1.0 fc | 25.8 ft |
| 24.0 ft | 0.7 fc | 31.0 ft |
| 28.0 ft | 0.5 fc | 36.2 ft |

Average Luminaire Luminance [cd/m²]

| | 0.00° | 45.00° | 90.00° |
|--------|-------|--------|--------|
| 0.00° | 5,736 | 5,736 | 5,736 |
| 45.00° | 1,743 | 1,754 | 1,729 |
| 55.00° | 1,160 | 1,159 | 1,163 |
| 65.00° | 870 | 876 | 899 |
| 75.00° | 628 | 622 | 648 |
| 85.00° | 345 | 346 | 315 |

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 | 9.5 | 10.9 | 9.9 | 11.2 | 11.5 | 9.6 | 10.9 | 9.9 | 11.2 | 11.5 |
| | 3H | 10.7 | 11.9 | 11.1 | 12.2 | 12.6 | 10.8 | 12.0 | 11.2 | 12.3 | 12.7 |
| | 4H | 11.1 | 12.2 | 11.5 | 12.6 | 13.0 | 11.2 | 12.3 | 11.6 | 12.7 | 13.1 |
| | 6H | 11.3 | 12.3 | 11.8 | 12.7 | 13.1 | 11.5 | 12.5 | 11.9 | 12.8 | 13.3 |
| | 8H | 11.4 | 12.3 | 11.8 | 12.7 | 13.2 | 11.5 | 12.5 | 12.0 | 12.9 | 13.3 |
| | 12H | 11.4 | 12.3 | 11.8 | 12.7 | 13.1 | 11.5 | 12.4 | 12.0 | 12.8 | 13.3 |
| 4H | 2H | 9.9 | 11.0 | 10.4 | 11.4 | 11.8 | 10.0 | 11.1 | 10.4 | 11.4 | 11.8 |
| | 3H | 11.3 | 12.2 | 11.8 | 12.6 | 13.1 | 11.4 | 12.3 | 11.8 | 12.7 | 13.1 |
| | 4H | 11.8 | 12.6 | 12.3 | 13.0 | 13.5 | 11.9 | 12.7 | 12.4 | 13.2 | 13.6 |
| | 6H | 12.1 | 12.8 | 12.6 | 13.3 | 13.7 | 12.3 | 13.0 | 12.7 | 13.4 | 13.9 |
| | 8H | 12.2 | 12.8 | 12.7 | 13.3 | 13.8 | 12.3 | 13.0 | 12.8 | 13.4 | 13.9 |
| | 12H | 12.2 | 12.8 | 12.7 | 13.3 | 13.8 | 12.4 | 12.9 | 12.9 | 13.4 | 13.9 |
| 8H | 4H | 12.0 | 12.6 | 12.4 | 13.1 | 13.5 | 12.1 | 12.7 | 12.6 | 13.2 | 13.7 |
| | 6H | 12.3 | 12.9 | 12.8 | 13.4 | 13.9 | 12.5 | 13.0 | 13.0 | 13.5 | 14.0 |
| | 8H | 12.4 | 12.9 | 13.0 | 13.4 | 13.9 | 12.6 | 13.1 | 13.1 | 13.6 | 14.1 |
| | 12H | 12.5 | 12.9 | 13.0 | 13.4 | 14.0 | 12.7 | 13.1 | 13.2 | 13.6 | 14.2 |
| 12H | 4H | 11.9 | 12.5 | 12.4 | 13.0 | 13.5 | 12.1 | 12.6 | 12.6 | 13.1 | 13.6 |
| | 6H | 12.3 | 12.8 | 12.9 | 13.3 | 13.8 | 12.5 | 13.0 | 13.0 | 13.4 | 14.0 |
| | 8H | 12.5 | 12.9 | 13.0 | 13.4 | 14.0 | 12.7 | 13.1 | 13.2 | 13.6 | 14.2 |

Corrected UGR values based on total output lumens

SHR = 1.0