

Indoor Distribution Test Report

Spectrum Lighting Inc.

994 Jefferson Street
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Spectrum Lighting Photometric Lab

Luminaire

4" Nom. Sq. x 12" H LED Cylinder XT Series, Narrow Beam
C0412SQXT-10L-xxK-ND-EX-GL-xx-MW

Test Number

SP-00628_9_M-10L

Test Date

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

Summary of Results

Power

| | |
|-------------|-------|
| Input Watts | 8.3 W |
|-------------|-------|

Lumen Output

| | |
|---------------|-----------|
| Output Lumens | 690 |
| Efficacy | 83.1 lm/W |

Luminous Dimensions

| | |
|-----------------|------|
| 0° - 180° Size | 0.18 |
| 90° - 270° Size | 0.18 |
| Height | 0 |

Spacing Criterion

| | |
|---------------------------|------|
| Two luminaires, plane 0° | 0.38 |
| Two luminaires, plane 90° | 0.38 |
| Four luminaires | 0.41 |

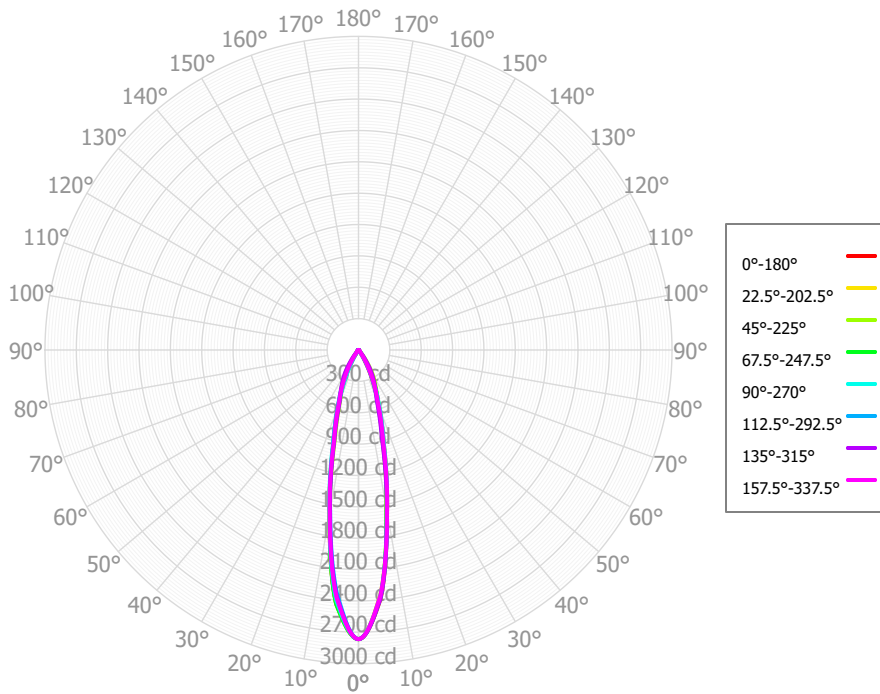
Full Beam Angle

| | |
|------------|-----|
| 0° - 180° | 23° |
| 90° - 270° | 23° |

IES File Header Contents

| Keyword | Value |
|-----------|--|
| TEST | SP-00628_9_M-10L |
| TESTLAB | VLS-245-981 |
| MANUFAC | Spectrum Lighting |
| ISSUEDATE | 11/13/2017 |
| UPDATE | 11/1/2021 |
| LUMINAIRE | 4" Nom. Sq. x 12" H LED Cylinder XT Series, Narrow Beam |
| LUMCAT | C0412SQXT-10L-xxK-ND-EX-GL-xx-MW |
| OTHER | Matte White finish, Clear Glass lens |
| OTHER | 2.16" Square Aperture |
| OTHER | 22 Degree Beam Angle |
| LAMP | N/A |
| LAMPCAT | N/A, Min. 83 CRI |
| OTHER | Total Luminaire Watts is approximate |
| OTHER | LEDXT lumen output is the same for all available CCT's |
| OTHER | This report prepared by Spectrum Lighting, scaled from 20L |

Candela Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % Fixture | Zone | Lumens | % Fixture |
|-----------------|--------|-----------|-------------------|--------|-----------|
| 0.00° - 10.00° | 205.67 | 29.82% | 90.00° - 100.00° | 0.12 | 0.02% |
| 10.00° - 20.00° | 255.69 | 37.07% | 100.00° - 110.00° | 0.00 | 0.00% |
| 20.00° - 30.00° | 156.22 | 22.65% | 100.00° - 120.00° | 0.00 | 0.00% |
| 30.00° - 40.00° | 48.33 | 7.01% | 120.00° - 130.00° | 0.00 | 0.00% |
| 40.00° - 50.00° | 8.24 | 1.19% | 130.00° - 140.00° | 0.00 | 0.00% |
| 50.00° - 60.00° | 8.48 | 1.23% | 140.00° - 150.00° | 0.00 | 0.00% |
| 60.00° - 70.00° | 3.03 | 0.44% | 150.00° - 160.00° | 0.00 | 0.00% |
| 70.00° - 80.00° | 1.93 | 0.28% | 160.00° - 170.00° | 0.00 | 0.00% |
| 80.00° - 90.00° | 1.99 | 0.29% | 170.00° - 180.00° | 0.00 | 0.00% |
| 0.00° - 90.00° | 689.58 | 99.98% | 0.00° - 180.00° | 689.71 | 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° | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 | 2766.33 |
| 5.00° | 2396.68 | 2363.02 | 2386.26 | 2383.04 | 2373.94 | 2346.43 | 2371.25 | 2385.44 | 2436.86 | 2401.73 | 2441.88 | 2442.08 | 2412.22 | 2382.33 | 2392.13 | 2368.78 | 2396.68 |
| 10.00° | 1562.02 | 1571.34 | 1544.80 | 1544.61 | 1567.28 | 1563.92 | 1568.29 | 1587.91 | 1591.89 | 1592.35 | 1576.68 | 1580.71 | 1596.61 | 1568.29 | 1561.78 | 1574.27 | 1562.02 |
| 15.00° | 934.99 | 926.24 | 877.36 | 908.11 | 941.91 | 928.08 | 893.24 | 917.24 | 931.14 | 916.75 | 867.27 | 912.81 | 950.92 | 894.85 | 860.94 | 917.46 | 934.99 |
| 20.00° | 562.79 | 568.54 | 530.95 | 565.87 | 584.10 | 574.85 | 527.88 | 556.61 | 566.06 | 556.65 | 513.22 | 544.38 | 559.33 | 533.89 | 511.25 | 552.48 | 562.79 |
| 25.00° | 309.76 | 355.78 | 385.95 | 363.26 | 341.75 | 358.82 | 383.51 | 346.55 | 316.70 | 340.02 | 377.34 | 319.57 | 291.46 | 320.21 | 364.13 | 334.04 | 309.76 |
| 30.00° | 122.94 | 181.88 | 270.42 | 192.05 | 150.48 | 186.13 | 265.26 | 175.63 | 121.94 | 166.06 | 246.15 | 151.75 | 109.24 | 158.53 | 242.44 | 161.01 | 122.94 |
| 35.00° | 28.33 | 58.42 | 135.45 | 65.49 | 39.97 | 59.92 | 129.35 | 55.24 | 23.17 | 49.18 | 110.66 | 38.94 | 26.04 | 52.13 | 114.10 | 49.31 | 28.33 |
| 40.00° | 9.99 | 13.42 | 42.50 | 12.89 | 9.46 | 14.77 | 37.33 | 13.75 | 9.16 | 12.30 | 27.07 | 11.30 | 9.51 | 13.50 | 34.13 | 12.90 | 9.99 |
| 45.00° | 7.60 | 7.80 | 11.48 | 8.03 | 7.37 | 7.96 | 12.23 | 7.56 | 7.06 | 7.44 | 9.29 | 7.41 | 6.99 | 8.56 | 11.45 | 8.30 | 7.60 |
| 50.00° | 7.58 | 8.33 | 10.62 | 9.08 | 7.88 | 9.00 | 9.38 | 8.65 | 7.06 | 8.40 | 8.60 | 8.63 | 7.82 | 7.58 | 10.51 | 8.36 | 7.58 |
| 55.00° | 9.85 | 10.53 | 12.37 | 10.25 | 9.48 | 12.51 | 13.38 | 12.50 | 11.16 | 11.46 | 13.08 | 12.57 | 10.75 | 9.72 | 11.62 | 10.18 | 9.85 |
| 60.00° | 6.71 | 6.15 | 7.08 | 6.38 | 5.09 | 7.30 | 7.91 | 6.88 | 6.21 | 6.96 | 7.08 | 6.44 | 6.36 | 6.39 | 7.92 | 5.95 | 6.71 |
| 65.00° | 2.07 | 1.95 | 1.92 | 1.65 | 1.41 | 2.39 | 1.89 | 2.33 | 2.06 | 2.50 | 2.30 | 2.29 | 2.49 | 1.92 | 2.47 | 1.71 | 2.07 |
| 70.00° | 1.32 | 1.16 | 1.62 | 1.63 | 1.37 | 1.43 | 1.78 | 2.24 | 2.08 | 1.79 | 1.86 | 1.82 | 1.72 | 1.22 | 1.12 | 1.07 | 1.32 |
| 75.00° | 1.48 | 1.20 | 0.75 | 0.91 | 1.57 | 2.38 | 3.12 | 3.06 | 2.67 | 1.93 | 2.01 | 2.38 | 2.11 | 0.99 | 1.29 | 1.03 | 1.48 |
| 80.00° | 0.71 | 1.18 | 1.21 | 1.24 | 1.05 | 2.45 | 3.16 | 3.64 | 3.52 | 2.95 | 2.69 | 3.25 | 3.34 | 1.06 | 1.08 | 1.16 | 0.71 |
| 85.00° | 0.77 | 0.60 | 0.80 | 0.81 | 0.52 | 3.83 | 3.82 | 4.47 | 4.00 | 4.28 | 3.89 | 4.42 | 3.67 | 0.81 | 0.65 | 0.80 | 0.77 |
| 90.00° | 1.14 | 0.64 | 0.91 | 0.67 | 1.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.85 | 0.84 | 1.17 | 1.14 |
| 95.00° | 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 | 0.00 | 0.00 | 0.00 |
| 100.00° | 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 | 0.00 | 0.00 | 0.00 |
| 105.00° | 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 | 0.00 | 0.00 | 0.00 |
| 110.00° | 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 | 0.00 | 0.00 | 0.00 |
| 115.00° | 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 | 0.00 | 0.00 | 0.00 |
| 120.00° | 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 | 0.00 | 0.00 | 0.00 |
| 125.00° | 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 | 0.00 | 0.00 | 0.00 |
| 130.00° | 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 | 0.00 | 0.00 | 0.00 |
| 135.00° | 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 | 0.00 | 0.00 | 0.00 |
| 140.00° | 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 | 0.00 | 0.00 | 0.00 |
| 145.00° | 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 | 0.00 | 0.00 | 0.00 |
| 150.00° | 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 | 0.00 | 0.00 | 0.00 |
| 155.00° | 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 | 0.00 | 0.00 | 0.00 |
| 160.00° | 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 | 0.00 | 0.00 | 0.00 |
| 165.00° | 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 | 0.00 | 0.00 | 0.00 |
| 170.00° | 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 | 0.00 | 0.00 | 0.00 |
| 175.00° | 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 | 0.00 | 0.00 | 0.00 |
| 180.00° | 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 | 0.00 | 0.00 | 0.00 |

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 | 821 | 821 | 821 | 821 | 802 | 802 | 802 | 802 | 766 | 766 | 766 | 734 | 734 | 734 | 704 | 704 | 690 |
| | 1 | 789 | 773 | 758 | 745 | 773 | 758 | 745 | 733 | 731 | 720 | 711 | 705 | 697 | 690 | 682 | 676 | 662 |
| | 2 | 759 | 732 | 709 | 689 | 745 | 720 | 699 | 682 | 698 | 681 | 667 | 678 | 665 | 653 | 660 | 649 | 636 |
| | 3 | 731 | 696 | 668 | 646 | 719 | 686 | 661 | 640 | 669 | 648 | 630 | 653 | 635 | 621 | 638 | 624 | 612 |
| | 4 | 705 | 664 | 633 | 610 | 694 | 656 | 628 | 606 | 642 | 618 | 599 | 629 | 609 | 593 | 617 | 600 | 589 |
| | 5 | 680 | 635 | 603 | 580 | 670 | 629 | 599 | 577 | 617 | 592 | 572 | 607 | 585 | 567 | 597 | 578 | 568 |
| | 6 | 657 | 609 | 577 | 554 | 648 | 604 | 574 | 552 | 595 | 568 | 548 | 586 | 563 | 545 | 578 | 557 | 548 |
| | 7 | 636 | 586 | 553 | 531 | 628 | 582 | 551 | 529 | 574 | 547 | 527 | 566 | 542 | 524 | 559 | 538 | 529 |
| | 8 | 615 | 564 | 532 | 510 | 608 | 561 | 530 | 509 | 554 | 527 | 507 | 548 | 523 | 505 | 542 | 520 | 512 |
| | 9 | 596 | 545 | 513 | 492 | 590 | 542 | 512 | 491 | 536 | 509 | 490 | 531 | 506 | 488 | 526 | 503 | 496 |
| | 10 | 578 | 526 | 496 | 475 | 572 | 524 | 494 | 474 | 519 | 492 | 473 | 514 | 490 | 472 | 510 | 487 | 481 |

Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|------------|-------------|---------------|
| 5.5 ft | 91.4 fc | 2.2 ft |
| 6.5 ft | 65.5 fc | 2.6 ft |
| 7.5 ft | 49.2 fc | 3.0 ft |
| 8.0 ft | 43.2 fc | 3.2 ft |
| 10.0 ft | 27.7 fc | 4.1 ft |
| 12.0 ft | 19.2 fc | 4.9 ft |
| 14.0 ft | 14.1 fc | 5.7 ft |
| 16.0 ft | 10.8 fc | 6.5 ft |
| 20.0 ft | 6.9 fc | 8.1 ft |
| 24.0 ft | 4.8 fc | 9.7 ft |
| 28.0 ft | 3.5 fc | 11.3 ft |

Average Luminaire Luminance [cd/m²]

| | 0.00° | 45.00° | 90.00° |
|---------------|--------|--------|--------|
| 0.00° | 919028 | 919028 | 919028 |
| 45.00° | 3569 | 5393 | 3464 |
| 55.00° | 5707 | 7162 | 5490 |
| 65.00° | 1624 | 1512 | 1107 |
| 75.00° | 1904 | 968 | 2010 |
| 85.00° | 2953 | 3047 | 1979 |

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 | 10.4 | 9.9 | 10.7 | 11.0 | 10.4 | 11.3 | 10.8 | 11.6 | 11.9 |
| | 3H | 9.5 | 10.3 | 9.9 | 10.6 | 11.0 | 10.4 | 11.2 | 10.8 | 11.6 | 11.9 |
| | 4H | 9.6 | 10.3 | 10.0 | 10.7 | 11.1 | 10.6 | 11.4 | 11.0 | 11.7 | 12.1 |
| | 6H | 9.7 | 10.3 | 10.1 | 10.7 | 11.1 | 11.3 | 12.0 | 11.7 | 12.4 | 12.8 |
| | 8H | 9.7 | 10.4 | 10.1 | 10.7 | 11.2 | 12.0 | 12.6 | 12.4 | 13.0 | 13.4 |
| | 12H | 9.8 | 10.4 | 10.2 | 10.8 | 11.2 | 12.8 | 13.5 | 13.3 | 13.8 | 14.3 |
| 4H | 2H | 9.3 | 10.1 | 9.7 | 10.4 | 10.8 | 10.2 | 10.9 | 10.6 | 11.3 | 11.7 |
| | 3H | 9.4 | 10.0 | 9.8 | 10.4 | 10.8 | 10.3 | 10.9 | 10.7 | 11.4 | 11.8 |
| | 4H | 9.5 | 10.1 | 10.0 | 10.5 | 10.9 | 10.8 | 11.4 | 11.2 | 11.8 | 12.2 |
| | 6H | 9.8 | 10.2 | 10.2 | 10.7 | 11.2 | 12.0 | 12.5 | 12.5 | 12.9 | 13.4 |
| | 8H | 9.9 | 10.3 | 10.4 | 10.8 | 11.2 | 12.9 | 13.4 | 13.4 | 13.8 | 14.3 |
| | 12H | 10.1 | 10.5 | 10.6 | 11.0 | 11.4 | 14.2 | 14.6 | 14.7 | 15.1 | 15.5 |
| 8H | 4H | 9.5 | 9.9 | 9.9 | 10.4 | 10.8 | 11.1 | 11.6 | 11.6 | 12.0 | 12.5 |
| | 6H | 9.9 | 10.2 | 10.4 | 10.7 | 11.2 | 12.8 | 13.2 | 13.3 | 13.7 | 14.1 |
| | 8H | 10.1 | 10.4 | 10.7 | 11.0 | 11.5 | 14.2 | 14.5 | 14.7 | 15.0 | 15.5 |
| | 12H | 10.5 | 10.8 | 11.0 | 11.3 | 11.8 | 15.9 | 16.2 | 16.5 | 16.7 | 17.3 |
| 12H | 4H | 9.4 | 9.8 | 9.9 | 10.3 | 10.8 | 11.3 | 11.7 | 11.8 | 12.2 | 12.7 |
| | 6H | 9.9 | 10.2 | 10.5 | 10.7 | 11.3 | 13.2 | 13.5 | 13.7 | 14.0 | 14.5 |
| | 8H | 10.2 | 10.5 | 10.8 | 11.0 | 11.6 | 14.8 | 15.0 | 15.3 | 15.5 | 16.1 |

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0