

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

SGECS4FX 20L 35K XX AR4FX60 FO SG
Nom 4" diam Chicago Plenum downlight, Fusion Optix lens, Soft glow finish

Test Number

SP-01171_M-20L

Test Date

6/16/2020

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

Summary of Results

Power

| | |
|-------------|--------|
| Input Watts | 14.1 W |
|-------------|--------|

Lumen Output

| | |
|---------------|------------|
| Output Lumens | 1378 |
| Efficacy | 97.74 lm/W |

Luminous Dimensions

| | |
|-----------------|------|
| 0° - 180° Size | -0.3 |
| 90° - 270° Size | -0.3 |
| Height | 0 |

Spacing Criterion

| | |
|---------------------------|------|
| Two luminaires, plane 0° | 1.09 |
| Two luminaires, plane 90° | 1.09 |
| Four luminaires | 1.09 |

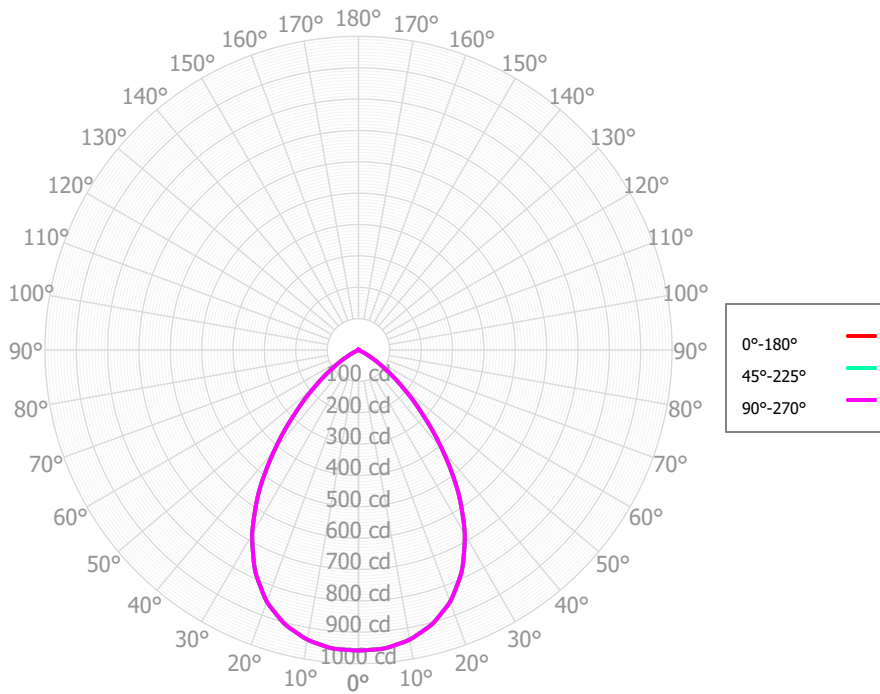
Full Beam Angle

| | |
|------------|-----|
| 0° - 180° | 75° |
| 90° - 270° | 75° |

IES File Header Contents

| Keyword | Value |
|-----------|---|
| TEST | SP-01171_M-20L |
| TESTLAB | Spectrum Lighting Photometric Lab, VLS-245-981 |
| MANUFAC | Spectrum Lighting |
| TESTDATE | 6/16/2020 |
| ISSUEDATE | 7/16/2020 |
| LUMCAT | SGECS4FX 20L 35K XX AR4FX60 FO SG |
| LUMINAIRE | Nom 4" diam Chicago Plenum downlight, Fusion Optix lens, Soft glow finish |
| OTHER | Beam angle: 75.5 deg |
| LAMPCAT | N/A |
| LAMP | N/A |
| OTHER | Total luminaire wattage is approximate |
| OTHER | CCT Output Multipliers: 30K x 0.97, 40K x 1.03, 50K x 1.03 |
| OTHER | This report prepared by Spectrum Lighting, scaled from 40L |

Candela Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % Fixture | Zone | Lumens | % Fixture |
|-----------------|----------|-----------|-------------------|----------|-----------|
| 0.00° - 10.00° | 94.31 | 6.83% | 90.00° - 100.00° | 0.60 | 0.04% |
| 10.00° - 20.00° | 253.92 | 18.39% | 100.00° - 110.00° | 0.59 | 0.04% |
| 20.00° - 30.00° | 354.76 | 25.70% | 100.00° - 120.00° | 1.16 | 0.08% |
| 30.00° - 40.00° | 342.23 | 24.79% | 120.00° - 130.00° | 0.61 | 0.04% |
| 40.00° - 50.00° | 223.35 | 16.18% | 130.00° - 140.00° | 0.53 | 0.04% |
| 50.00° - 60.00° | 92.63 | 6.71% | 140.00° - 150.00° | 0.47 | 0.03% |
| 60.00° - 70.00° | 14.12 | 1.02% | 150.00° - 160.00° | 0.37 | 0.03% |
| 70.00° - 80.00° | 0.63 | 0.05% | 160.00° - 170.00° | 0.23 | 0.02% |
| 80.00° - 90.00° | 0.59 | 0.04% | 170.00° - 180.00° | 0.08 | 0.01% |
| 0.00° - 90.00° | 1,376.55 | 99.71% | 0.00° - 180.00° | 1,380.59 | 100.00% |

Candela Distribution

| | 0.00° | 45.00° | 90.00° |
|---------|--------|--------|--------|
| 0.00° | 958.56 | 958.56 | 958.56 |
| 2.50° | 957.07 | 957.07 | 957.07 |
| 5.00° | 955.36 | 955.36 | 955.36 |
| 7.50° | 947.11 | 947.11 | 947.11 |
| 10.00° | 938.09 | 938.09 | 938.09 |
| 12.50° | 922.15 | 922.15 | 922.15 |
| 15.00° | 905.57 | 905.57 | 905.57 |
| 17.50° | 880.31 | 880.31 | 880.31 |
| 20.00° | 854.46 | 854.46 | 854.46 |
| 22.50° | 817.03 | 817.03 | 817.03 |
| 25.00° | 779.14 | 779.14 | 779.14 |
| 27.50° | 728.78 | 728.78 | 728.78 |
| 30.00° | 678.17 | 678.17 | 678.17 |
| 32.50° | 616.52 | 616.52 | 616.52 |
| 35.00° | 554.63 | 554.63 | 554.63 |
| 37.50° | 485.53 | 485.53 | 485.53 |
| 40.00° | 416.62 | 416.62 | 416.62 |
| 42.50° | 351.14 | 351.14 | 351.14 |
| 45.00° | 286.54 | 286.54 | 286.54 |
| 47.50° | 233.02 | 233.02 | 233.02 |
| 50.00° | 180.69 | 180.69 | 180.69 |
| 52.50° | 139.19 | 139.19 | 139.19 |
| 55.00° | 99.16 | 99.16 | 99.16 |
| 57.50° | 69.77 | 69.77 | 69.77 |
| 60.00° | 42.02 | 42.02 | 42.02 |
| 62.50° | 24.11 | 24.11 | 24.11 |
| 65.00° | 8.48 | 8.48 | 8.48 |
| 67.50° | 4.22 | 4.22 | 4.22 |
| 70.00° | 0.75 | 0.75 | 0.75 |
| 72.50° | 0.65 | 0.65 | 0.65 |
| 75.00° | 0.57 | 0.57 | 0.57 |
| 77.50° | 0.54 | 0.54 | 0.54 |
| 80.00° | 0.53 | 0.53 | 0.53 |
| 82.50° | 0.57 | 0.57 | 0.57 |
| 85.00° | 0.58 | 0.58 | 0.58 |
| 87.50° | 0.52 | 0.52 | 0.52 |
| 90.00° | 0.49 | 0.49 | 0.49 |
| 92.50° | 0.52 | 0.52 | 0.52 |
| 95.00° | 0.55 | 0.55 | 0.55 |
| 97.50° | 0.58 | 0.58 | 0.58 |
| 100.00° | 0.60 | 0.60 | 0.60 |
| 102.50° | 0.57 | 0.57 | 0.57 |
| 105.00° | 0.55 | 0.55 | 0.55 |
| 107.50° | 0.54 | 0.54 | 0.54 |
| 110.00° | 0.54 | 0.54 | 0.54 |
| 112.50° | 0.54 | 0.54 | 0.54 |

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% | 10% |
| | pw | 70% | 50% | 30% | 10% | 70% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% | 50% | 30% | 10% |
| | 0 | 1,643 | 1,643 | 1,643 | 1,643 | 1,604 | 1,604 | 1,604 | 1,604 | 1,532 | 1,532 | 1,532 | 1,466 | 1,466 | 1,466 | 1,405 | 1,405 | 1,405 |
| | 1 | 1,553 | 1,509 | 1,470 | 1,435 | 1,518 | 1,479 | 1,444 | 1,412 | 1,422 | 1,393 | 1,367 | 1,369 | 1,347 | 1,326 | 1,321 | 1,303 | 1,286 |
| | 2 | 1,459 | 1,381 | 1,316 | 1,262 | 1,427 | 1,356 | 1,297 | 1,247 | 1,310 | 1,261 | 1,219 | 1,267 | 1,227 | 1,192 | 1,228 | 1,195 | 1,166 |
| | 3 | 1,368 | 1,264 | 1,184 | 1,120 | 1,338 | 1,244 | 1,170 | 1,110 | 1,206 | 1,143 | 1,091 | 1,171 | 1,118 | 1,073 | 1,138 | 1,094 | 1,056 |
| | 4 | 1,282 | 1,160 | 1,070 | 1,002 | 1,255 | 1,143 | 1,059 | 995 | 1,111 | 1,039 | 982 | 1,082 | 1,020 | 970 | 1,054 | 1,002 | 958 |
| | 5 | 1,202 | 1,066 | 972 | 902 | 1,177 | 1,052 | 964 | 898 | 1,026 | 948 | 889 | 1,001 | 933 | 880 | 978 | 919 | 872 |
| | 6 | 1,127 | 984 | 887 | 818 | 1,105 | 972 | 881 | 815 | 949 | 868 | 808 | 928 | 857 | 802 | 908 | 845 | 796 |
| | 7 | 1,059 | 910 | 813 | 745 | 1,039 | 900 | 808 | 743 | 881 | 798 | 738 | 863 | 789 | 734 | 846 | 780 | 729 |
| | 8 | 997 | 845 | 749 | 683 | 978 | 836 | 745 | 681 | 819 | 737 | 678 | 804 | 729 | 674 | 789 | 722 | 671 |
| | 9 | 940 | 786 | 692 | 629 | 923 | 779 | 689 | 628 | 765 | 682 | 625 | 751 | 676 | 622 | 738 | 670 | 620 |
| | 10 | 888 | 735 | 643 | 581 | 872 | 728 | 640 | 580 | 715 | 634 | 578 | 704 | 629 | 576 | 692 | 624 | 574 |

Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|------------|-------------|---------------|
| 5.5 ft | 31.7 fc | 8.5 ft |
| 6.5 ft | 22.7 fc | 10.1 ft |
| 7.5 ft | 17.0 fc | 11.6 ft |
| 8.0 ft | 15.0 fc | 12.4 ft |
| 10.0 ft | 9.6 fc | 15.5 ft |
| 12.0 ft | 6.7 fc | 18.6 ft |
| 14.0 ft | 4.9 fc | 21.7 ft |
| 16.0 ft | 3.7 fc | 24.8 ft |
| 20.0 ft | 2.4 fc | 30.9 ft |
| 24.0 ft | 1.7 fc | 37.1 ft |
| 28.0 ft | 1.2 fc | 43.3 ft |

Average Luminaire Luminance [cd/m²]

| | 0.00° | 45.00° | 90.00° |
|---------------|---------|---------|---------|
| 0.00° | 145,968 | 145,968 | 145,968 |
| 45.00° | 61,708 | 61,708 | 61,708 |
| 55.00° | 26,327 | 26,327 | 26,327 |
| 65.00° | 3,057 | 3,057 | 3,057 |
| 75.00° | 332 | 332 | 332 |
| 85.00° | 1,009 | 1,009 | 1,009 |

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 | 18.0 | 19.2 | 18.3 | 19.5 | 19.8 | 18.0 | 19.2 | 18.3 | 19.5 | 19.8 |
| | 3H | 17.8 | 18.9 | 18.2 | 19.2 | 19.6 | 17.8 | 18.9 | 18.2 | 19.2 | 19.6 |
| | 4H | 17.7 | 18.7 | 18.1 | 19.1 | 19.5 | 17.7 | 18.7 | 18.1 | 19.1 | 19.5 |
| | 6H | 17.6 | 18.5 | 18.1 | 18.9 | 19.3 | 17.6 | 18.5 | 18.1 | 18.9 | 19.3 |
| | 8H | 17.6 | 18.4 | 18.0 | 18.8 | 19.2 | 17.6 | 18.4 | 18.0 | 18.8 | 19.2 |
| | 12H | 17.5 | 18.3 | 18.0 | 18.7 | 19.2 | 17.5 | 18.3 | 18.0 | 18.7 | 19.2 |
| 4H | 2H | 17.8 | 18.7 | 18.2 | 19.1 | 19.5 | 17.8 | 18.7 | 18.2 | 19.1 | 19.5 |
| | 3H | 17.6 | 18.4 | 18.0 | 18.8 | 19.2 | 17.6 | 18.4 | 18.0 | 18.8 | 19.2 |
| | 4H | 17.5 | 18.2 | 17.9 | 18.6 | 19.1 | 17.5 | 18.2 | 17.9 | 18.6 | 19.1 |
| | 6H | 17.4 | 18.0 | 17.9 | 18.5 | 18.9 | 17.4 | 18.0 | 17.9 | 18.5 | 18.9 |
| | 8H | 17.3 | 17.9 | 17.8 | 18.4 | 18.8 | 17.3 | 17.9 | 17.8 | 18.4 | 18.8 |
| | 12H | 17.3 | 17.8 | 17.8 | 18.3 | 18.8 | 17.3 | 17.8 | 17.8 | 18.3 | 18.8 |
| 8H | 4H | 17.3 | 17.9 | 17.8 | 18.4 | 18.8 | 17.3 | 17.9 | 17.8 | 18.4 | 18.8 |
| | 6H | 17.2 | 17.7 | 17.7 | 18.2 | 18.7 | 17.2 | 17.7 | 17.7 | 18.2 | 18.7 |
| | 8H | 17.2 | 17.6 | 17.7 | 18.1 | 18.6 | 17.2 | 17.6 | 17.7 | 18.1 | 18.6 |
| | 12H | 17.1 | 17.5 | 17.6 | 18.0 | 18.6 | 17.1 | 17.5 | 17.6 | 18.0 | 18.6 |
| 12H | 4H | 17.3 | 17.8 | 17.8 | 18.3 | 18.8 | 17.3 | 17.8 | 17.8 | 18.3 | 18.8 |
| | 6H | 17.2 | 17.6 | 17.7 | 18.1 | 18.6 | 17.2 | 17.6 | 17.7 | 18.1 | 18.6 |
| | 8H | 17.1 | 17.5 | 17.6 | 18.0 | 18.6 | 17.1 | 17.5 | 17.6 | 18.0 | 18.6 |

Corrected UGR values based on total output lumens

SHR = 1.0