

Indoor Distribution Test Report

Spectrum Lighting Inc.

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Spectrum Lighting Photometric Lab

Luminaire

AO1218GV 55L 35K TF2 MWI

Nom 18" diam downlight with TF2 diffuser, matte white interior finish

Test Number

SP-01258

Test Date

8/5/2021

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

Summary of Results

Power

| | |
|-------------|--------|
| Input Watts | 39.5 W |
|-------------|--------|

Lumen Output

| | |
|---------------|-------------|
| Output Lumens | 4379 |
| Efficacy | 110.86 lm/W |

Luminous Dimensions

| | |
|-----------------|------|
| 0° - 180° Size | -1.5 |
| 90° - 270° Size | -1.5 |
| Height | 0 |

Spacing Criterion

| | |
|---------------------------|------|
| Two luminaires, plane 0° | 1.17 |
| Two luminaires, plane 90° | 1.17 |
| Four luminaires | 1.27 |

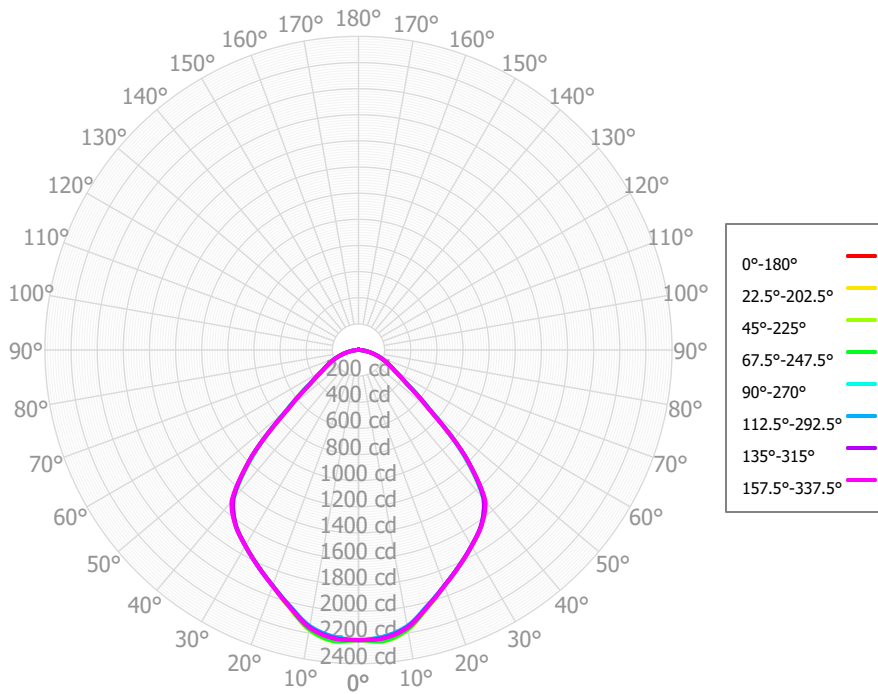
Full Beam Angle

| | |
|------------|-----|
| 0° - 180° | 91° |
| 90° - 270° | 91° |

IES File Header Contents

| Keyword | Value |
|-----------|---|
| TEST | SP-01258 |
| TESTLAB | Spectrum Lighting Photometric Lab, VLS-245-981 |
| MANUFAC | Spectrum Lighting |
| TESTDATE | 8/5/2021 |
| ISSUEDATE | 8/9/2021 |
| LUMCAT | AO1218GV 55L 35K TF2 MWI |
| LUMINAIRE | Nom 18" diam downlight with TF2 diffuser, matte white interior finish |
| OTHER | Beam angle: 91 deg |
| LAMPCAT | N/A |
| LAMP | N/A |
| OTHER | CCT Output Multipliers: 27K x 0.97, 30K x 0.98, 40K x 1.03 |
| OTHER | Total luminaire wattage is approximate. |
| OTHER | This report prepared by Spectrum Lighting |
| _CRI | 83 |
| _CCTMULT | 27K x 0.97, 30K x 0.98, 40K x 1.03 |
| _LAMPMULT | 15L x 0.27, 27L x 0.46, 37L x 0.68 |

Candela Polar Plot



Zonal Lumen Summary

| Zone | Lumens | % Fixture | Zone | Lumens | % Fixture |
|-----------------|---------|-----------|-------------------|---------|-----------|
| 0.00° - 10.00° | 222.21 | 5.07% | 90.00° - 100.00° | 3.38 | 0.08% |
| 10.00° - 20.00° | 571.89 | 13.06% | 100.00° - 110.00° | 1.80 | 0.04% |
| 20.00° - 30.00° | 839.93 | 19.18% | 100.00° - 120.00° | 3.57 | 0.08% |
| 30.00° - 40.00° | 1016.26 | 23.21% | 120.00° - 130.00° | 1.70 | 0.04% |
| 40.00° - 50.00° | 859.72 | 19.63% | 130.00° - 140.00° | 1.52 | 0.03% |
| 50.00° - 60.00° | 430.10 | 9.82% | 140.00° - 150.00° | 1.33 | 0.03% |
| 60.00° - 70.00° | 249.63 | 5.70% | 150.00° - 160.00° | 0.99 | 0.02% |
| 70.00° - 80.00° | 136.44 | 3.12% | 160.00° - 170.00° | 0.63 | 0.01% |
| 80.00° - 90.00° | 39.60 | 0.90% | 170.00° - 180.00° | 0.23 | 0.01% |
| 0.00° - 90.00° | 4365.78 | 99.70% | 0.00° - 180.00° | 4379.11 | 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° | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 | 2221.06 |
| 5.00° | 2222.94 | 2226.74 | 2238.32 | 2234.31 | 2203.40 | 2202.48 | 2212.24 | 2216.00 | 2222.94 | 2226.74 | 2238.32 | 2234.31 | 2203.40 | 2202.48 | 2212.24 | 2216.00 | 2222.94 |
| 10.00° | 2165.36 | 2170.38 | 2176.13 | 2170.79 | 2153.11 | 2145.17 | 2154.68 | 2159.61 | 2165.36 | 2170.38 | 2176.13 | 2170.79 | 2153.11 | 2145.17 | 2154.68 | 2159.61 | 2165.36 |
| 15.00° | 2038.49 | 2043.35 | 2039.31 | 2037.72 | 2034.08 | 2027.69 | 2032.90 | 2037.44 | 2038.49 | 2043.35 | 2039.31 | 2037.72 | 2034.08 | 2027.69 | 2032.90 | 2037.44 | 2038.49 |
| 20.00° | 1921.10 | 1922.92 | 1920.96 | 1921.37 | 1922.39 | 1919.42 | 1920.12 | 1923.10 | 1921.10 | 1922.92 | 1920.96 | 1921.37 | 1922.39 | 1919.42 | 1920.12 | 1923.10 | 1921.10 |
| 25.00° | 1823.12 | 1824.14 | 1822.79 | 1823.43 | 1825.76 | 1823.19 | 1822.50 | 1825.76 | 1823.12 | 1824.14 | 1822.79 | 1823.43 | 1825.76 | 1823.19 | 1822.50 | 1825.76 | 1823.12 |
| 30.00° | 1732.41 | 1733.26 | 1731.30 | 1731.61 | 1732.33 | 1732.24 | 1729.32 | 1732.73 | 1732.41 | 1733.26 | 1731.30 | 1731.61 | 1732.33 | 1732.24 | 1729.32 | 1732.73 | 1732.41 |
| 35.00° | 1639.28 | 1639.06 | 1640.58 | 1638.40 | 1640.42 | 1639.65 | 1635.84 | 1641.90 | 1639.28 | 1639.06 | 1640.58 | 1638.40 | 1640.42 | 1639.65 | 1635.84 | 1641.90 | 1639.28 |
| 40.00° | 1499.77 | 1489.31 | 1494.20 | 1489.73 | 1488.61 | 1501.32 | 1491.39 | 1512.08 | 1499.77 | 1489.31 | 1494.20 | 1489.73 | 1488.61 | 1501.32 | 1491.39 | 1512.08 | 1499.77 |
| 45.00° | 1163.34 | 1139.62 | 1146.60 | 1145.04 | 1142.54 | 1158.24 | 1163.04 | 1159.18 | 1163.34 | 1139.62 | 1146.60 | 1145.04 | 1142.54 | 1158.24 | 1163.04 | 1159.18 | 1163.34 |
| 50.00° | 705.01 | 717.17 | 712.34 | 721.22 | 723.56 | 708.77 | 711.69 | 701.51 | 705.01 | 717.17 | 712.34 | 721.22 | 723.56 | 708.77 | 711.69 | 701.51 | 705.01 |
| 55.00° | 450.31 | 454.07 | 451.85 | 456.63 | 457.04 | 453.51 | 453.87 | 450.13 | 450.31 | 454.07 | 451.85 | 456.63 | 457.04 | 453.51 | 453.87 | 450.13 | 450.31 |
| 60.00° | 322.49 | 325.04 | 324.12 | 325.98 | 325.67 | 323.30 | 323.32 | 321.67 | 322.49 | 325.04 | 324.12 | 325.98 | 325.67 | 323.30 | 323.32 | 321.67 | 322.49 |
| 65.00° | 250.21 | 251.76 | 250.80 | 250.89 | 250.54 | 250.69 | 250.00 | 250.10 | 250.21 | 251.76 | 250.80 | 250.89 | 250.54 | 250.69 | 250.00 | 250.10 | 250.21 |
| 70.00° | 187.32 | 187.33 | 187.12 | 187.42 | 187.08 | 187.62 | 186.39 | 188.18 | 187.32 | 187.33 | 187.12 | 187.42 | 187.08 | 187.62 | 186.39 | 188.18 | 187.32 |
| 75.00° | 128.64 | 128.26 | 128.16 | 128.37 | 127.93 | 128.58 | 127.19 | 128.33 | 128.64 | 128.26 | 128.16 | 128.37 | 127.93 | 128.58 | 127.19 | 128.33 | 128.64 |
| 80.00° | 75.84 | 74.90 | 74.95 | 75.63 | 75.40 | 75.25 | 75.42 | 75.17 | 75.84 | 74.90 | 74.95 | 75.63 | 75.40 | 75.25 | 75.42 | 75.17 | 75.84 |
| 85.00° | 32.36 | 30.28 | 31.09 | 31.18 | 31.25 | 32.14 | 32.57 | 32.74 | 32.36 | 30.28 | 31.09 | 31.18 | 31.25 | 32.14 | 32.57 | 32.74 | 32.36 |
| 90.00° | 7.93 | 5.65 | 6.54 | 6.29 | 6.48 | 7.88 | 8.36 | 7.97 | 7.93 | 5.65 | 6.54 | 6.29 | 6.48 | 7.88 | 8.36 | 7.97 | 7.93 |
| 95.00° | 1.96 | 1.84 | 1.64 | 1.59 | 1.72 | 1.97 | 2.00 | 1.68 | 1.96 | 1.84 | 1.64 | 1.59 | 1.72 | 1.97 | 2.00 | 1.68 | 1.96 |
| 100.00° | 1.74 | 1.58 | 1.53 | 1.86 | 1.42 | 1.65 | 1.63 | 1.67 | 1.74 | 1.58 | 1.53 | 1.86 | 1.42 | 1.65 | 1.63 | 1.67 | 1.74 |
| 105.00° | 1.75 | 1.50 | 1.79 | 1.83 | 1.77 | 1.78 | 1.63 | 1.75 | 1.75 | 1.50 | 1.79 | 1.83 | 1.77 | 1.78 | 1.63 | 1.75 | 1.75 |
| 110.00° | 1.91 | 1.70 | 1.59 | 1.67 | 1.42 | 1.77 | 1.96 | 1.73 | 1.91 | 1.70 | 1.59 | 1.67 | 1.42 | 1.77 | 1.96 | 1.73 | 1.91 |
| 115.00° | 1.77 | 1.74 | 2.05 | 1.75 | 1.37 | 1.96 | 1.94 | 1.73 | 1.77 | 1.74 | 2.05 | 1.75 | 1.37 | 1.96 | 1.94 | 1.73 | 1.77 |
| 120.00° | 1.70 | 1.51 | 1.70 | 1.90 | 2.29 | 1.94 | 1.98 | 1.74 | 1.70 | 1.51 | 1.70 | 1.90 | 2.29 | 1.94 | 1.98 | 1.74 | 1.70 |
| 125.00° | 1.81 | 1.70 | 1.78 | 2.03 | 2.08 | 1.76 | 2.04 | 1.96 | 1.81 | 1.70 | 1.78 | 2.03 | 2.08 | 1.76 | 2.04 | 1.96 | 1.81 |
| 130.00° | 1.95 | 1.86 | 1.65 | 2.17 | 1.83 | 1.87 | 2.00 | 2.20 | 1.95 | 1.86 | 1.65 | 2.17 | 1.83 | 1.87 | 2.00 | 2.20 | 1.95 |
| 135.00° | 2.23 | 2.07 | 2.00 | 1.83 | 1.51 | 1.92 | 1.91 | 1.89 | 2.23 | 2.07 | 2.00 | 1.83 | 1.51 | 1.92 | 1.91 | 1.89 | 2.23 |
| 140.00° | 2.27 | 2.14 | 2.10 | 1.99 | 1.92 | 1.82 | 2.07 | 2.24 | 2.27 | 2.14 | 2.10 | 1.99 | 1.92 | 1.82 | 2.07 | 2.24 | 2.27 |
| 145.00° | 2.31 | 1.91 | 2.12 | 2.22 | 1.83 | 2.30 | 2.10 | 2.37 | 2.31 | 1.91 | 2.12 | 2.22 | 1.83 | 2.30 | 2.10 | 2.37 | 2.31 |
| 150.00° | 2.21 | 1.78 | 2.40 | 2.05 | 1.90 | 1.90 | 2.55 | 2.08 | 2.21 | 1.78 | 2.40 | 2.05 | 1.90 | 1.90 | 2.55 | 2.08 | 2.21 |
| 155.00° | 2.53 | 1.96 | 2.14 | 1.82 | 1.87 | 2.37 | 2.27 | 2.23 | 2.53 | 1.96 | 2.14 | 1.82 | 1.87 | 2.37 | 2.27 | 2.23 | 2.53 |
| 160.00° | 2.86 | 2.03 | 2.06 | 2.05 | 1.86 | 2.25 | 2.22 | 1.91 | 2.86 | 2.03 | 2.06 | 2.05 | 1.86 | 2.25 | 2.22 | 1.91 | 2.86 |
| 165.00° | 2.54 | 2.23 | 1.95 | 2.28 | 2.05 | 1.94 | 2.53 | 2.35 | 2.54 | 2.23 | 1.95 | 2.28 | 2.05 | 1.94 | 2.53 | 2.35 | 2.54 |
| 170.00° | 2.05 | 2.26 | 2.08 | 2.39 | 1.98 | 2.07 | 2.79 | 2.32 | 2.05 | 2.26 | 2.08 | 2.39 | 1.98 | 2.07 | 2.79 | 2.32 | 2.05 |
| 175.00° | 2.39 | 2.38 | 2.05 | 1.77 | 2.02 | 2.48 | 2.51 | 2.44 | 2.39 | 2.38 | 2.05 | 1.77 | 2.02 | 2.48 | 2.51 | 2.44 | 2.39 |
| 180.00° | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 | 2.16 |

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 | 5210 | 5210 | 5210 | 5210 | 5087 | 5087 | 5087 | 5087 | 4858 | 4858 | 4858 | 4649 | 4649 | 4649 | 4456 | 4456 | 4366 |
| | 1 | 4849 | 4677 | 4523 | 4385 | 4733 | 4578 | 4439 | 4313 | 4393 | 4280 | 4176 | 4224 | 4132 | 4047 | 4067 | 3994 | 3910 |
| | 2 | 4487 | 4186 | 3937 | 3728 | 4378 | 4105 | 3877 | 3683 | 3953 | 3762 | 3598 | 3813 | 3654 | 3516 | 3683 | 3553 | 3477 |
| | 3 | 4153 | 3761 | 3457 | 3215 | 4051 | 3693 | 3413 | 3187 | 3567 | 3328 | 3131 | 3450 | 3247 | 3077 | 3341 | 3171 | 3103 |
| | 4 | 3849 | 3395 | 3062 | 2809 | 3755 | 3339 | 3029 | 2789 | 3233 | 2964 | 2752 | 3134 | 2902 | 2715 | 3042 | 2844 | 2784 |
| | 5 | 3574 | 3080 | 2734 | 2479 | 3488 | 3033 | 2708 | 2466 | 2943 | 2658 | 2440 | 2860 | 2610 | 2414 | 2782 | 2564 | 2512 |
| | 6 | 3327 | 2807 | 2459 | 2209 | 3248 | 2767 | 2438 | 2199 | 2691 | 2399 | 2180 | 2620 | 2361 | 2162 | 2554 | 2324 | 2278 |
| | 7 | 3104 | 2571 | 2225 | 1983 | 3033 | 2537 | 2209 | 1976 | 2472 | 2177 | 1962 | 2411 | 2146 | 1949 | 2354 | 2117 | 2076 |
| | 8 | 2904 | 2365 | 2026 | 1793 | 2839 | 2336 | 2013 | 1788 | 2280 | 1987 | 1778 | 2227 | 1961 | 1767 | 2178 | 1937 | 1902 |
| | 9 | 2723 | 2185 | 1854 | 1631 | 2664 | 2159 | 1843 | 1627 | 2111 | 1822 | 1619 | 2065 | 1801 | 1611 | 2022 | 1781 | 1750 |
| | 10 | 2561 | 2026 | 1706 | 1493 | 2507 | 2004 | 1697 | 1490 | 1962 | 1679 | 1483 | 1922 | 1661 | 1477 | 1884 | 1644 | 1617 |

Cone of Light

| Mtg Height | Light Level | Beam Diameter |
|------------|-------------|---------------|
| 5.5 ft | 73.4 fc | 11.1 ft |
| 6.5 ft | 52.6 fc | 13.2 ft |
| 7.5 ft | 39.5 fc | 15.2 ft |
| 8.0 ft | 34.7 fc | 16.2 ft |
| 10.0 ft | 22.2 fc | 20.3 ft |
| 12.0 ft | 15.4 fc | 24.3 ft |
| 14.0 ft | 11.3 fc | 28.4 ft |
| 16.0 ft | 8.7 fc | 32.4 ft |
| 20.0 ft | 5.6 fc | 40.5 ft |
| 24.0 ft | 3.9 fc | 48.6 ft |
| 28.0 ft | 2.8 fc | 56.7 ft |

Average Luminaire Luminance [cd/m²]

| | 0.00° | 45.00° | 90.00° |
|--------|-------|--------|--------|
| 0.00° | 13529 | 13529 | 13529 |
| 45.00° | 10021 | 9877 | 9842 |
| 55.00° | 4782 | 4798 | 4854 |
| 65.00° | 3606 | 3615 | 3611 |
| 75.00° | 3028 | 3016 | 3011 |
| 85.00° | 2262 | 2173 | 2184 |

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 | 14.5 | 15.9 | 14.9 | 16.3 | 16.6 | 14.6 | 16.0 | 14.9 | 16.3 | 16.6 |
| | 3H | 15.9 | 17.2 | 16.3 | 17.5 | 17.9 | 15.9 | 17.2 | 16.3 | 17.5 | 17.9 |
| | 4H | 16.4 | 17.6 | 16.9 | 18.0 | 18.4 | 16.5 | 17.6 | 16.9 | 18.0 | 18.4 |
| | 6H | 16.8 | 17.9 | 17.2 | 18.3 | 18.7 | 16.8 | 17.9 | 17.3 | 18.3 | 18.7 |
| | 8H | 16.9 | 18.0 | 17.4 | 18.4 | 18.8 | 17.0 | 18.0 | 17.4 | 18.4 | 18.8 |
| | 12H | 17.0 | 18.0 | 17.5 | 18.4 | 18.8 | 17.0 | 18.0 | 17.5 | 18.4 | 18.8 |
| 4H | 2H | 15.0 | 16.1 | 15.4 | 16.5 | 16.9 | 15.0 | 16.2 | 15.4 | 16.5 | 16.9 |
| | 3H | 16.6 | 17.6 | 17.0 | 18.0 | 18.4 | 16.6 | 17.6 | 17.0 | 18.0 | 18.4 |
| | 4H | 17.2 | 18.1 | 17.7 | 18.5 | 19.0 | 17.3 | 18.1 | 17.7 | 18.6 | 19.0 |
| | 6H | 17.7 | 18.5 | 18.2 | 18.9 | 19.4 | 17.8 | 18.5 | 18.2 | 19.0 | 19.4 |
| | 8H | 17.9 | 18.6 | 18.4 | 19.1 | 19.5 | 17.9 | 18.6 | 18.4 | 19.1 | 19.5 |
| | 12H | 18.0 | 18.6 | 18.5 | 19.1 | 19.6 | 18.0 | 18.6 | 18.5 | 19.1 | 19.6 |
| 8H | 4H | 17.5 | 18.2 | 17.9 | 18.6 | 19.1 | 17.5 | 18.2 | 18.0 | 18.6 | 19.1 |
| | 6H | 18.1 | 18.6 | 18.6 | 19.1 | 19.6 | 18.1 | 18.7 | 18.6 | 19.2 | 19.6 |
| | 8H | 18.3 | 18.8 | 18.8 | 19.3 | 19.8 | 18.3 | 18.8 | 18.8 | 19.3 | 19.8 |
| | 12H | 18.5 | 18.9 | 19.0 | 19.4 | 20.0 | 18.5 | 18.9 | 19.0 | 19.4 | 20.0 |
| 12H | 4H | 17.5 | 18.1 | 18.0 | 18.6 | 19.1 | 17.5 | 18.1 | 18.0 | 18.6 | 19.1 |
| | 6H | 18.1 | 18.6 | 18.6 | 19.1 | 19.6 | 18.1 | 18.6 | 18.6 | 19.1 | 19.7 |
| | 8H | 18.4 | 18.8 | 18.9 | 19.3 | 19.9 | 18.4 | 18.8 | 18.9 | 19.3 | 19.9 |

Corrected UGR values based on total output energy
 SHR = 1.0

Corrected UGR values based on total output lumens

SHR = 1.0