

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

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Peachtree City, GA 30269

Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: STREETWORKS

Report Number: P1461606

Luminaire Tested: USSL-70-750-U-T3R-HSS

Issue Date: 06/10/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1461606  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 6/11/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: USSL-70-750-U-T3R-HSS  
Description: USSL DISCRETE LED 1 SQUARE 70W 70CRI 5000K FIXTURE w/ TYPE III DISTRIBUTION  
OPTIC AND HOUSE SIDE SHIELD  
Light Source: (40) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8009.5 lumens  
Efficiency: N/A  
Efficacy: 109.7 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.67' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B1 - U0 - G2

Input Watts (W): 73  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.98  
Total Harmonic Distortion (THDi): 2.73%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

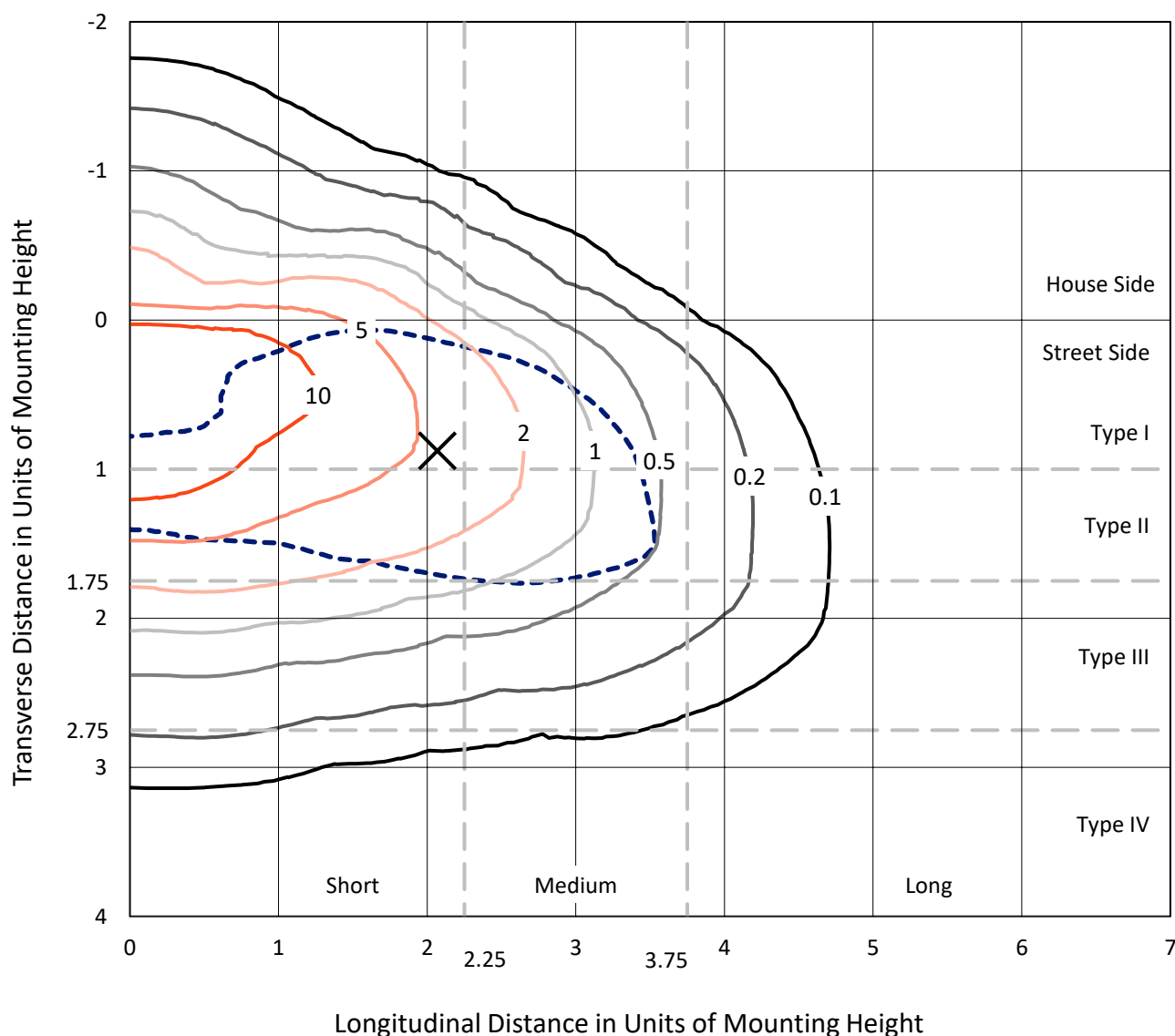
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CATALOG NUMBER: USSL-70-750-U-T3R-HSS

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

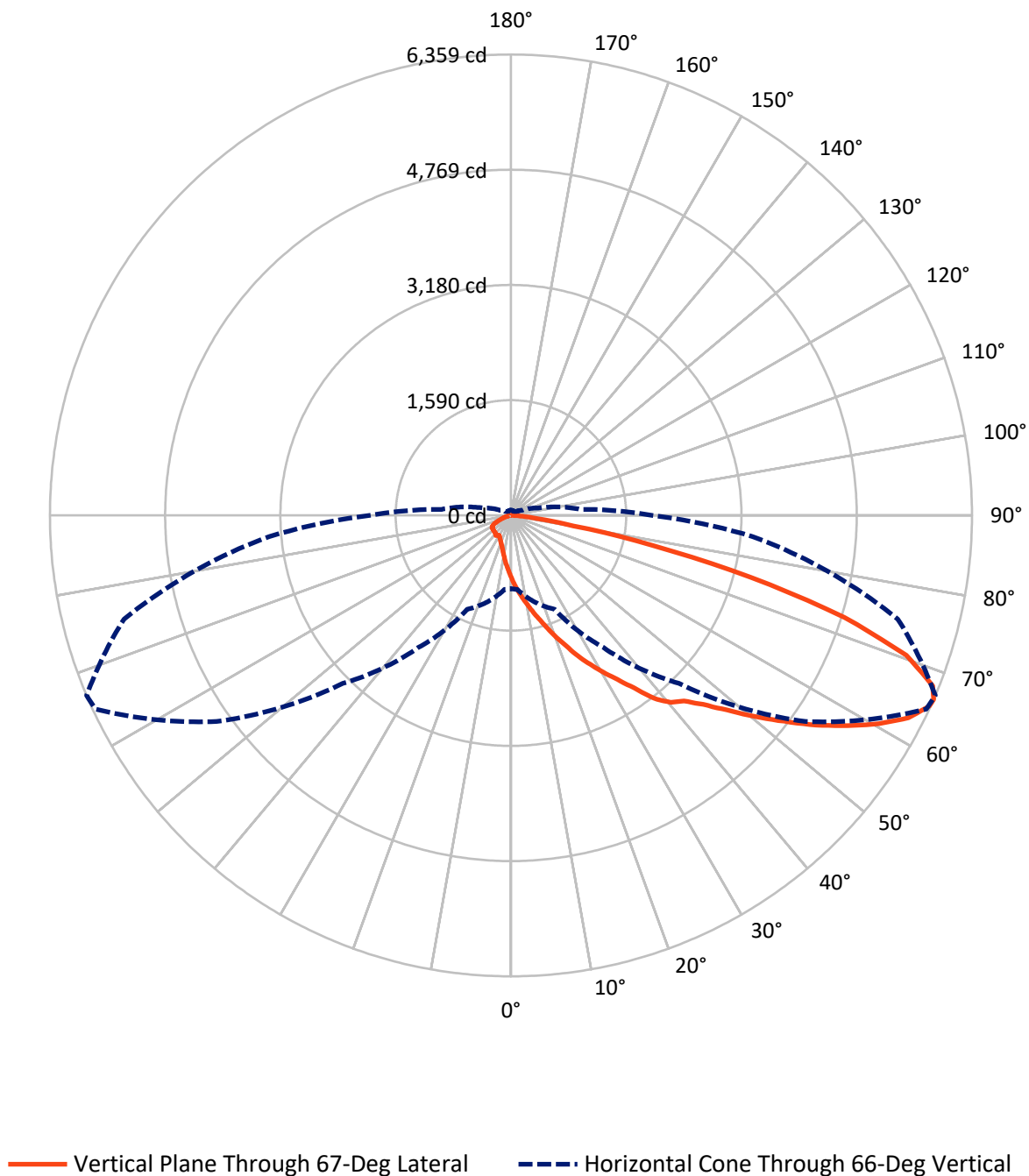


Based on 10 foot mounting height. Maximum calculated value = 18.7 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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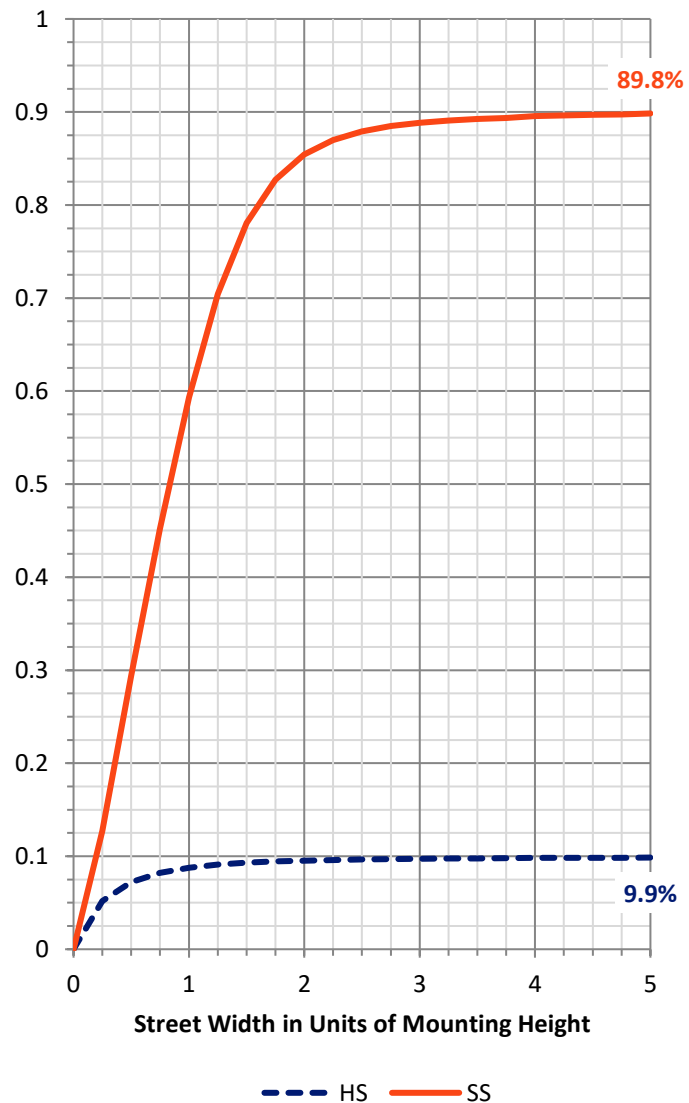
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 796.7    | 0.0    | 796.7  |
|                    | % Fixture | 9.9      | 0.0    | 9.9    |
| <b>Street Side</b> | Lumens    | 7212.8   | 0.0    | 7212.8 |
|                    | % Fixture | 90.1     | 0.0    | 90.1   |
| <b>Total</b>       | Lumens    | 8009.5   | 0.0    | 8009.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 88.0   | 1.1       |
| 10°-20°   | 314.4  | 3.9       |
| 20°-30°   | 600.8  | 7.5       |
| 30°-40°   | 980.2  | 12.2      |
| 40°-50°   | 1504.1 | 18.8      |
| 50°-60°   | 1932.5 | 24.1      |
| 60°-70°   | 1761.7 | 22.0      |
| 70°-80°   | 748.1  | 9.3       |
| 80°-90°   | 79.7   | 1.0       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 8009.5 | 100.0     |
| 0°-180°   | 8009.5 | 100.0     |

**Coefficient of Utilization**



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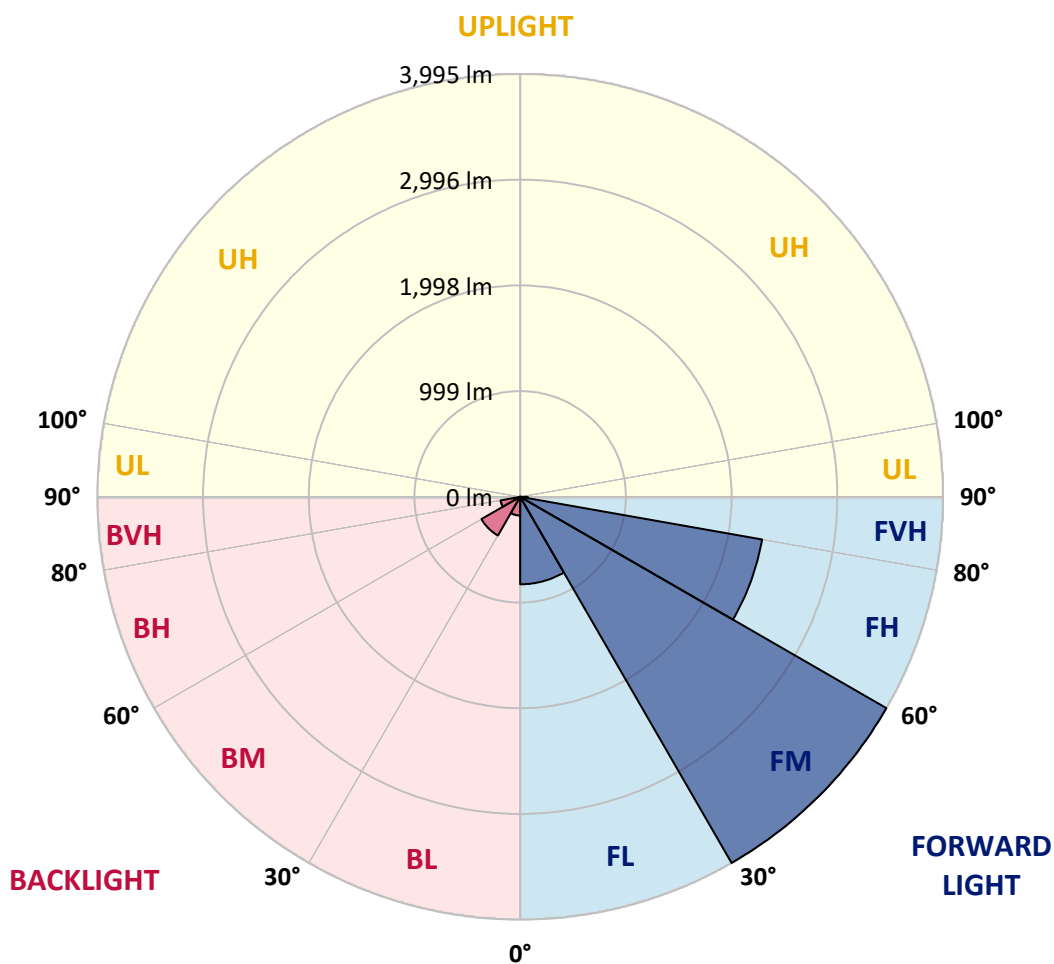
CATALOG NUMBER: USSL-70-750-U-T3R-HSS

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 826.4  | 10.3      |                         |      |         |
| FM   | (30°-60°)   | 3995.2 | 49.9      |                         |      |         |
| FH   | (60°-80°)   | 2320.9 | 29.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 70.2   | 0.9       |                         |      | G1/100  |
| BL   | (0°-30°)    | 176.7  | 2.2       | B1/500                  |      |         |
| BM   | (30°-60°)   | 421.5  | 5.3       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 189.0  | 2.4       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 9.5    | 0.1       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 67°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 859.5  | 859.5  | 859.5  | 859.5  | 859.5  | 859.5  | 859.5  | 859.5  | 859.5  | 859.5  | 859.5  |
| 2.5°  | 1080.3 | 1095.2 | 1084.7 | 1070.4 | 1048.4 | 1020.3 | 999.4  | 961.4  | 957.0  | 926.1  | 881.5  |
| 5°    | 1312.7 | 1313.2 | 1295.0 | 1274.7 | 1232.3 | 1181.1 | 1122.2 | 1059.4 | 1050.0 | 986.7  | 909.1  |
| 7.5°  | 1532.9 | 1553.3 | 1529.6 | 1496.0 | 1431.0 | 1357.3 | 1265.3 | 1164.6 | 1146.4 | 1049.5 | 937.7  |
| 10°   | 1774.6 | 1787.3 | 1759.8 | 1710.8 | 1643.0 | 1545.6 | 1424.4 | 1281.8 | 1251.0 | 1127.1 | 969.6  |
| 12.5° | 1974.0 | 1967.9 | 1954.7 | 1908.4 | 1834.6 | 1733.9 | 1584.7 | 1398.6 | 1371.0 | 1209.2 | 1006.0 |
| 15°   | 2101.7 | 2112.2 | 2100.6 | 2074.2 | 2015.8 | 1918.3 | 1768.0 | 1546.7 | 1497.1 | 1299.5 | 1045.6 |
| 17.5° | 2181.5 | 2190.3 | 2194.8 | 2193.1 | 2167.2 | 2091.8 | 1936.5 | 1696.4 | 1639.7 | 1397.5 | 1094.1 |
| 20°   | 2236.0 | 2246.5 | 2252.6 | 2275.1 | 2275.7 | 2246.5 | 2117.1 | 1850.1 | 1798.9 | 1507.6 | 1157.9 |
| 22.5° | 2299.4 | 2308.7 | 2319.2 | 2345.6 | 2375.4 | 2371.5 | 2279.5 | 2029.0 | 1958.5 | 1637.0 | 1224.6 |
| 25°   | 2390.2 | 2400.7 | 2404.0 | 2424.9 | 2456.8 | 2480.0 | 2438.1 | 2214.0 | 2147.9 | 1782.9 | 1307.7 |
| 27.5° | 2507.5 | 2518.0 | 2527.9 | 2531.7 | 2545.5 | 2572.5 | 2575.2 | 2389.7 | 2326.9 | 1925.5 | 1396.4 |
| 30°   | 2694.7 | 2699.7 | 2693.1 | 2672.7 | 2652.9 | 2665.0 | 2703.5 | 2557.6 | 2510.3 | 2090.1 | 1499.3 |
| 32.5° | 2828.5 | 2838.4 | 2847.8 | 2831.3 | 2780.1 | 2788.3 | 2840.6 | 2744.3 | 2699.1 | 2283.4 | 1632.6 |
| 35°   | 2868.7 | 2891.3 | 2895.7 | 2873.7 | 2859.9 | 2925.4 | 3008.0 | 2956.8 | 2921.6 | 2512.5 | 1804.9 |
| 37.5° | 3087.3 | 3098.9 | 3090.6 | 2976.6 | 2910.0 | 3012.4 | 3188.1 | 3222.2 | 3201.3 | 2817.5 | 2037.3 |
| 40°   | 3468.3 | 3449.1 | 3457.3 | 3206.2 | 3047.7 | 3112.6 | 3340.6 | 3424.3 | 3391.8 | 2992.0 | 2165.6 |
| 42.5° | 3782.7 | 3764.6 | 3700.7 | 3410.0 | 3266.2 | 3243.1 | 3459.5 | 3523.9 | 3498.6 | 3130.2 | 2307.1 |
| 45°   | 3969.9 | 3962.8 | 3830.6 | 3653.3 | 3653.9 | 3407.2 | 3621.4 | 3739.8 | 3718.9 | 3368.7 | 2534.5 |
| 47.5° | 4005.2 | 3989.8 | 3944.1 | 3851.0 | 3914.9 | 3685.8 | 3832.8 | 4041.0 | 4010.7 | 3668.7 | 2789.4 |
| 50°   | 3896.7 | 3870.8 | 3935.8 | 3951.8 | 3978.2 | 3844.4 | 4070.7 | 4369.7 | 4358.1 | 3978.7 | 3043.2 |
| 52.5° | 3576.2 | 3587.3 | 3775.6 | 3892.8 | 3922.6 | 3928.1 | 4311.9 | 4728.7 | 4719.9 | 4298.1 | 3274.0 |
| 55°   | 3120.9 | 3158.3 | 3444.1 | 3675.9 | 3814.7 | 4024.4 | 4555.2 | 5067.3 | 5104.2 | 4625.2 | 3486.5 |
| 57.5° | 2406.2 | 2448.0 | 2997.0 | 3376.9 | 3663.2 | 4095.5 | 4827.2 | 5459.3 | 5472.6 | 4930.8 | 3648.4 |
| 60°   | 1830.2 | 1885.3 | 2353.9 | 2901.2 | 3387.9 | 4089.4 | 5053.5 | 5820.6 | 5833.2 | 5242.4 | 3713.9 |
| 62.5° | 1444.8 | 1480.1 | 1832.4 | 2310.4 | 2994.8 | 3931.9 | 5196.2 | 6126.1 | 6151.5 | 5453.3 | 3623.6 |
| 65°   | 1146.4 | 1140.3 | 1382.0 | 1660.1 | 2492.6 | 3544.3 | 5097.0 | 6312.3 | 6340.9 | 5543.0 | 3431.4 |
| 66°   | 1009.3 | 1025.8 | 1232.3 | 1431.0 | 2225.0 | 3277.3 | 4956.6 | 6321.1 | 6359.1 | 5523.8 | 3347.2 |
| 67.5° | 823.7  | 836.9  | 1001.0 | 1137.0 | 1857.8 | 2831.8 | 4664.3 | 6219.7 | 6273.7 | 5415.9 | 3194.7 |
| 70°   | 532.4  | 553.4  | 650.8  | 745.5  | 1219.6 | 2024.1 | 3864.8 | 5686.8 | 5784.8 | 4958.3 | 2845.6 |
| 72.5° | 339.7  | 349.6  | 394.2  | 439.9  | 692.7  | 1320.9 | 2962.9 | 4741.9 | 4808.5 | 4085.0 | 2208.0 |
| 75°   | 238.4  | 238.4  | 253.8  | 261.0  | 384.3  | 762.1  | 1904.0 | 3298.2 | 3417.7 | 2720.0 | 1427.7 |
| 77.5° | 196.0  | 193.8  | 193.8  | 182.8  | 221.3  | 411.9  | 1098.5 | 1943.1 | 1991.0 | 1513.6 | 793.4  |
| 80°   | 159.7  | 161.3  | 160.8  | 142.6  | 151.4  | 224.1  | 551.7  | 894.7  | 873.8  | 668.4  | 364.5  |
| 82.5° | 116.2  | 120.6  | 125.0  | 108.5  | 111.2  | 148.7  | 264.8  | 393.7  | 372.8  | 293.5  | 181.7  |
| 85°   | 80.9   | 85.3   | 87.5   | 74.9   | 70.5   | 89.8   | 135.5  | 162.4  | 157.5  | 128.3  | 84.8   |
| 87.5° | 47.9   | 46.8   | 46.8   | 41.3   | 36.3   | 44.6   | 52.3   | 49.6   | 40.7   | 32.5   | 19.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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CATALOG NUMBER: USSL-70-750-U-T3R-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 859.5  | 859.5  | 859.5 | 859.5 | 859.5 | 859.5 | 859.5 | 859.5 | 859.5 | 859.5 | 859.5 |
| 2.5°  | 865.0  | 845.2  | 805.5 | 772.0 | 737.3 | 707.0 | 685.5 | 661.8 | 647.5 | 644.8 | 638.2 |
| 5°    | 872.7  | 832.5  | 761.0 | 688.8 | 628.3 | 584.2 | 547.9 | 526.4 | 509.9 | 503.3 | 503.8 |
| 7.5°  | 881.5  | 821.0  | 710.3 | 617.2 | 541.3 | 493.9 | 461.4 | 443.2 | 431.7 | 430.0 | 432.2 |
| 10°   | 889.8  | 812.7  | 663.5 | 546.8 | 474.1 | 431.1 | 411.3 | 401.4 | 395.3 | 394.2 | 393.7 |
| 12.5° | 903.6  | 802.8  | 622.2 | 490.6 | 424.0 | 392.0 | 379.9 | 373.3 | 371.1 | 371.7 | 370.6 |
| 15°   | 921.7  | 795.6  | 578.1 | 444.3 | 387.6 | 365.6 | 355.1 | 351.8 | 352.4 | 352.4 | 351.8 |
| 17.5° | 943.2  | 790.7  | 539.1 | 406.4 | 359.6 | 341.4 | 335.3 | 333.1 | 334.2 | 335.9 | 335.3 |
| 20°   | 976.8  | 791.8  | 504.4 | 379.9 | 338.1 | 321.0 | 314.4 | 314.4 | 317.2 | 318.8 | 319.9 |
| 22.5° | 1013.1 | 796.2  | 476.3 | 356.8 | 318.3 | 301.2 | 294.0 | 296.8 | 298.4 | 302.3 | 302.3 |
| 25°   | 1061.0 | 807.8  | 451.5 | 335.9 | 296.2 | 278.6 | 272.6 | 274.2 | 278.1 | 283.0 | 283.6 |
| 27.5° | 1112.2 | 824.3  | 430.6 | 316.1 | 274.8 | 255.5 | 250.0 | 250.5 | 256.0 | 259.9 | 262.1 |
| 30°   | 1181.1 | 851.8  | 420.7 | 301.2 | 253.8 | 232.9 | 225.2 | 225.2 | 232.4 | 238.4 | 238.4 |
| 32.5° | 1286.2 | 909.1  | 431.7 | 296.2 | 236.2 | 212.0 | 204.8 | 204.3 | 209.2 | 215.8 | 215.8 |
| 35°   | 1407.4 | 999.4  | 465.8 | 303.4 | 226.9 | 197.1 | 187.2 | 187.8 | 191.1 | 195.5 | 196.6 |
| 37.5° | 1594.6 | 1119.4 | 501.6 | 309.4 | 215.8 | 181.7 | 173.4 | 175.1 | 177.3 | 180.6 | 180.6 |
| 40°   | 1677.2 | 1151.3 | 481.2 | 294.0 | 206.5 | 170.7 | 160.8 | 163.5 | 166.3 | 169.0 | 169.0 |
| 42.5° | 1784.0 | 1215.2 | 487.3 | 280.8 | 203.2 | 161.9 | 151.4 | 154.2 | 156.4 | 159.7 | 159.7 |
| 45°   | 1964.6 | 1348.5 | 517.6 | 269.8 | 201.5 | 155.8 | 144.3 | 145.4 | 146.5 | 149.8 | 150.3 |
| 47.5° | 2165.0 | 1476.2 | 548.4 | 259.9 | 193.3 | 149.8 | 136.6 | 136.6 | 137.7 | 139.9 | 139.9 |
| 50°   | 2353.3 | 1589.1 | 575.4 | 250.5 | 179.5 | 143.2 | 128.8 | 127.7 | 126.6 | 127.2 | 127.2 |
| 52.5° | 2525.7 | 1699.7 | 596.3 | 242.8 | 166.3 | 136.0 | 120.6 | 117.8 | 115.6 | 114.5 | 115.1 |
| 55°   | 2658.4 | 1778.5 | 617.2 | 236.2 | 153.1 | 126.6 | 110.7 | 105.7 | 104.1 | 102.4 | 103.0 |
| 57.5° | 2740.4 | 1792.8 | 634.3 | 228.0 | 141.0 | 115.6 | 100.8 | 95.3  | 94.2  | 92.5  | 92.5  |
| 60°   | 2698.6 | 1696.4 | 617.2 | 216.9 | 128.8 | 103.5 | 89.2  | 87.0  | 84.8  | 83.7  | 83.7  |
| 62.5° | 2445.8 | 1434.9 | 560.0 | 202.1 | 115.6 | 90.3  | 80.9  | 79.3  | 77.1  | 76.5  | 76.0  |
| 65°   | 2067.6 | 1080.3 | 443.2 | 178.9 | 100.8 | 79.3  | 73.2  | 71.6  | 71.0  | 73.2  | 74.3  |
| 66°   | 1943.1 | 960.3  | 388.2 | 169.6 | 94.7  | 75.4  | 70.5  | 68.3  | 69.9  | 72.7  | 73.2  |
| 67.5° | 1747.7 | 830.3  | 318.3 | 154.7 | 89.2  | 69.9  | 65.5  | 65.0  | 68.3  | 69.4  | 69.9  |
| 70°   | 1471.2 | 659.1  | 232.4 | 127.2 | 74.9  | 61.1  | 58.4  | 61.7  | 61.1  | 61.1  | 61.1  |
| 72.5° | 1091.3 | 498.9  | 172.3 | 99.7  | 60.6  | 53.4  | 54.0  | 53.4  | 51.8  | 51.2  | 50.7  |
| 75°   | 677.8  | 322.1  | 119.5 | 72.7  | 49.6  | 50.7  | 46.8  | 44.0  | 41.8  | 40.7  | 40.2  |
| 77.5° | 383.2  | 180.1  | 77.1  | 52.3  | 41.8  | 46.8  | 39.6  | 36.3  | 34.7  | 33.6  | 33.0  |
| 80°   | 192.7  | 103.0  | 47.9  | 35.8  | 35.8  | 39.6  | 33.6  | 30.8  | 28.1  | 23.1  | 20.4  |
| 82.5° | 107.9  | 57.8   | 29.7  | 25.3  | 28.1  | 31.9  | 28.1  | 24.2  | 20.4  | 7.2   | 7.2   |
| 85°   | 57.8   | 29.2   | 13.8  | 13.2  | 14.9  | 17.1  | 14.9  | 12.7  | 7.2   | 1.7   | 2.8   |
| 87.5° | 12.1   | 5.5    | 4.4   | 4.4   | 3.9   | 3.3   | 2.2   | 1.7   | 1.1   | 0.6   | 0.6   |
| 90°   | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP2-2501-321-5

Test Date: 04/10/2025

Luminaire Tested: GKO-PB1E-750-U-T4W

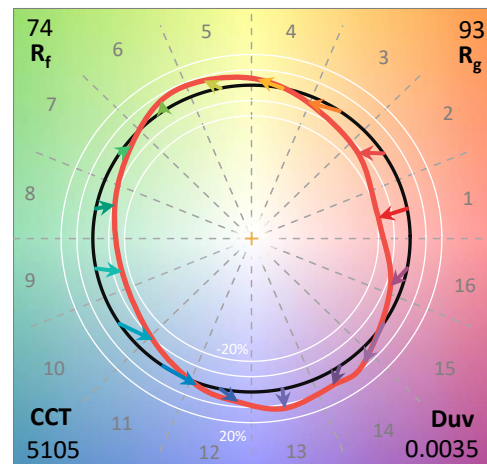
Data in this report applies to families of products including GKO-PB1E-750-U-T4W

### Test Information

Test Method: LM-79-2019  
 Report Number: SP2-2501-321-5  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP2 - 165CM SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 04/10/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GKO-PB1E-750-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 5105     | CRI (Ra): | 72.2 |      |       |
| CIE u':                   | 0.2079   | R1:       | 68.8 | R9:  | -38.2 |
| CIE v':                   | 0.4868   | R2:       | 78.3 | R10: | 48.2  |
| Duv:                      | 0.0035   | R3:       | 84.9 | R11: | 68.1  |
| CIE x:                    | 0.3428   | R4:       | 71.7 | R12: | 42.9  |
| CIE y:                    | 0.3567   | R5:       | 69.8 | R13: | 70.6  |
| CIE z:                    | 0.3005   | R6:       | 69.8 | R14: | 91.6  |
| Peak Wavelength (nm):     | 451      | R7:       | 81.2 | R15: | 61.7  |
| Dominant Wavelength (nm): | 567      | R8:       | 53.5 |      |       |
| Purity:                   | 9.884628 |           |      |      |       |
| Rf:                       | 74.2     |           |      |      |       |
| Rg:                       | 92.7     |           |      |      |       |



### Test Conditions

Stabilization Time: 30M  
 Operation Time: 1H 30M  
 Sphere Temperature (°C): 25.0

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN2187                | 1/6/2025         | 7/6/2025             |
| Power Meter                    | INXT2011002           | 1/21/2025        | 1/21/2026            |
| AC Power Source                | IN0458                | 10/22/2024       | 10/22/2025           |
| DC Power Source                | IN0212                | 10/22/2024       | 10/22/2025           |
| Sphere Thermometer             | IN4036B               | 10/22/2024       | 10/22/2025           |
| Room Thermometer               | IN0046                | 10/22/2024       | 10/22/2025           |

REPORT NUMBER: SP2-2501-321-5

**CIE 1931 Chromaticity Diagram**



**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 134                         | NR               | 620       | 390                         | NR               | 750       | 10                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 165                         | NR               | 625       | 354                         | NR               | 755       | 9                           | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 218                         | NR               | 630       | 319                         | NR               | 760       | 8                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 281                         | NR               | 635       | 285                         | NR               | 765       | 7                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 343                         | NR               | 640       | 254                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 400                         | NR               | 645       | 224                         | NR               | 775       | 5                           | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 444                         | NR               | 650       | 197                         | NR               | 780       | 4                           | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 477                         | NR               | 655       | 173                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 501                         | NR               | 660       | 150                         | NR               | 790       | 3                           | NR               | 920       | 0                           | NR               |
| 405       | 9                           | NR               | 535       | 520                         | NR               | 665       | 131                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 14                          | NR               | 540       | 534                         | NR               | 670       | 113                         | NR               | 800       | 2                           | NR               | 930       | 0                           | NR               |
| 415       | 26                          | NR               | 545       | 547                         | NR               | 675       | 98                          | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 50                          | NR               | 550       | 561                         | NR               | 680       | 85                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 95                          | NR               | 555       | 574                         | NR               | 685       | 73                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 168                         | NR               | 560       | 586                         | NR               | 690       | 63                          | NR               | 820       | 1                           | NR               | 950       | 0                           | NR               |
| 435       | 284                         | NR               | 565       | 596                         | NR               | 695       | 54                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 452                         | NR               | 570       | 604                         | NR               | 700       | 46                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 705                         | NR               | 575       | 606                         | NR               | 705       | 40                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 980                         | NR               | 580       | 603                         | NR               | 710       | 34                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 869                         | NR               | 585       | 592                         | NR               | 715       | 29                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 531                         | NR               | 590       | 577                         | NR               | 720       | 25                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 372                         | NR               | 595       | 554                         | NR               | 725       | 22                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 268                         | NR               | 600       | 527                         | NR               | 730       | 19                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 174                         | NR               | 605       | 497                         | NR               | 735       | 16                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 135                         | NR               | 610       | 462                         | NR               | 740       | 14                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 126                         | NR               | 615       | 428                         | NR               | 745       | 12                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.82

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 134                      | NR            | 620    | 390                      | NR            | 750    | 10                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 165                      | NR            | 625    | 354                      | NR            | 755    | 9                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 218                      | NR            | 630    | 319                      | NR            | 760    | 8                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 281                      | NR            | 635    | 285                      | NR            | 765    | 7                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 343                      | NR            | 640    | 254                      | NR            | 770    | 6                        | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 400                      | NR            | 645    | 224                      | NR            | 775    | 5                        | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 444                      | NR            | 650    | 197                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 477                      | NR            | 655    | 173                      | NR            | 785    | 4                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 501                      | NR            | 660    | 150                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 9                        | NR            | 535    | 520                      | NR            | 665    | 131                      | NR            | 795    | 3                        | NR            | 925    | 0                        | NR            |
| 410    | 14                       | NR            | 540    | 534                      | NR            | 670    | 113                      | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 547                      | NR            | 675    | 98                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 50                       | NR            | 550    | 561                      | NR            | 680    | 85                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 95                       | NR            | 555    | 574                      | NR            | 685    | 73                       | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 168                      | NR            | 560    | 586                      | NR            | 690    | 63                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 284                      | NR            | 565    | 596                      | NR            | 695    | 54                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 452                      | NR            | 570    | 604                      | NR            | 700    | 46                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 705                      | NR            | 575    | 606                      | NR            | 705    | 40                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 980                      | NR            | 580    | 603                      | NR            | 710    | 34                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 869                      | NR            | 585    | 592                      | NR            | 715    | 29                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 531                      | NR            | 590    | 577                      | NR            | 720    | 25                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 372                      | NR            | 595    | 554                      | NR            | 725    | 22                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 268                      | NR            | 600    | 527                      | NR            | 730    | 19                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 174                      | NR            | 605    | 497                      | NR            | 735    | 16                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 135                      | NR            | 610    | 462                      | NR            | 740    | 14                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 126                      | NR            | 615    | 428                      | NR            | 745    | 12                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.75

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 134                                  | NR                             | 620               | 390                                  | NR                             | 750               | 10                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 165                                  | NR                             | 625               | 354                                  | NR                             | 755               | 9                                    | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 218                                  | NR                             | 630               | 319                                  | NR                             | 760               | 8                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 281                                  | NR                             | 635               | 285                                  | NR                             | 765               | 7                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 343                                  | NR                             | 640               | 254                                  | NR                             | 770               | 6                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 400                                  | NR                             | 645               | 224                                  | NR                             | 775               | 5                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 2                                    | NR                             | 520               | 444                                  | NR                             | 650               | 197                                  | NR                             | 780               | 4                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 477                                  | NR                             | 655               | 173                                  | NR                             | 785               | 4                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 501                                  | NR                             | 660               | 150                                  | NR                             | 790               | 3                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 9                                    | NR                             | 535               | 520                                  | NR                             | 665               | 131                                  | NR                             | 795               | 3                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 14                                   | NR                             | 540               | 534                                  | NR                             | 670               | 113                                  | NR                             | 800               | 2                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 26                                   | NR                             | 545               | 547                                  | NR                             | 675               | 98                                   | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 50                                   | NR                             | 550               | 561                                  | NR                             | 680               | 85                                   | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 95                                   | NR                             | 555               | 574                                  | NR                             | 685               | 73                                   | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 168                                  | NR                             | 560               | 586                                  | NR                             | 690               | 63                                   | NR                             | 820               | 1                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 284                                  | NR                             | 565               | 596                                  | NR                             | 695               | 54                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 452                                  | NR                             | 570               | 604                                  | NR                             | 700               | 46                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 705                                  | NR                             | 575               | 606                                  | NR                             | 705               | 40                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 980                                  | NR                             | 580               | 603                                  | NR                             | 710               | 34                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 869                                  | NR                             | 585               | 592                                  | NR                             | 715               | 29                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 531                                  | NR                             | 590               | 577                                  | NR                             | 720               | 25                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 372                                  | NR                             | 595               | 554                                  | NR                             | 725               | 22                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 268                                  | NR                             | 600               | 527                                  | NR                             | 730               | 19                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 174                                  | NR                             | 605               | 497                                  | NR                             | 735               | 16                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 135                                  | NR                             | 610               | 462                                  | NR                             | 740               | 14                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 126                                  | NR                             | 615               | 428                                  | NR                             | 745               | 12                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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TM-30-18

### Summary

$R_f = 74.2$   
 $R_g = 92.7$   
 $\text{CIE } R_a = 72.2$   
 $R_g = -38.2$



### Color Vector Graphics



**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 63 | CES51 = 89 | CES76 = 51 |
| CES02 = 59 | CES27 = 89 | CES52 = 89 | CES77 = 68 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 69 | CES54 = 84 | CES79 = 80 |
| CES05 = 46 | CES30 = 88 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 72 | CES56 = 74 | CES81 = 79 |
| CES07 = 38 | CES32 = 63 | CES57 = 73 | CES82 = 91 |
| CES08 = 38 | CES33 = 82 | CES58 = 74 | CES83 = 90 |
| CES09 = 29 | CES34 = 70 | CES59 = 86 | CES84 = 85 |
| CES10 = 72 | CES35 = 83 | CES60 = 88 | CES85 = 78 |
| CES11 = 56 | CES36 = 88 | CES61 = 82 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 81 | CES87 = 77 |
| CES13 = 41 | CES38 = 98 | CES63 = 73 | CES88 = 81 |
| CES14 = 74 | CES39 = 97 | CES64 = 64 | CES89 = 73 |
| CES15 = 70 | CES40 = 91 | CES65 = 61 | CES90 = 80 |
| CES16 = 46 | CES41 = 96 | CES66 = 56 | CES91 = 72 |
| CES17 = 49 | CES42 = 80 | CES67 = 54 | CES92 = 58 |
| CES18 = 55 | CES43 = 79 | CES68 = 64 | CES93 = 75 |
| CES19 = 71 | CES44 = 99 | CES69 = 73 | CES94 = 53 |
| CES20 = 63 | CES45 = 87 | CES70 = 56 | CES95 = 64 |
| CES21 = 85 | CES46 = 85 | CES71 = 47 | CES96 = 76 |
| CES22 = 77 | CES47 = 90 | CES72 = 82 | CES97 = 86 |
| CES23 = 91 | CES48 = 80 | CES73 = 47 | CES98 = 76 |
| CES24 = 90 | CES49 = 83 | CES74 = 90 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 50 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)