

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: STREETWORKS

Report Number: P822479

Luminaire Tested: **PMM-SA2C-735-U-RW**

Issue Date: 04/10/2024

**Test Information**

Test Method: LM-79-08  
Report Number: P822479  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-7)  
Test Lab: INNOVATION CENTER  
Issue Date: 04/10/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: PMM-SA2C-735-U-RW  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS  
EACH AND RECTANGULAR WIDE OPTICS.  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11802.5 lumens  
Efficiency: N/A  
Efficacy: 104.4 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B3 - U0 - G3

Input Watts (W): 113  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT

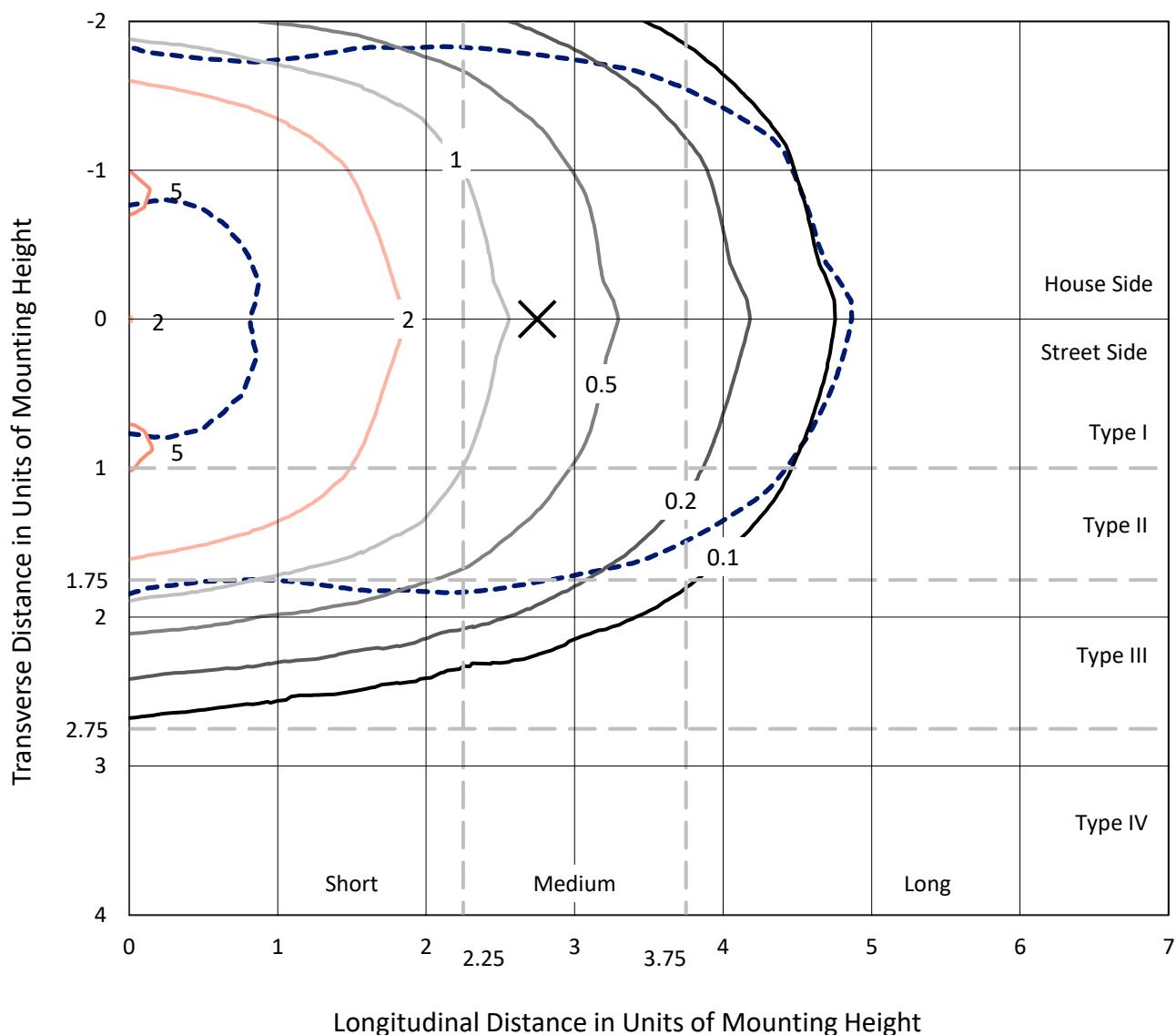
REPORT NUMBER: P822479

CATALOG NUMBER: PMM-SA2C-735-U-RW

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

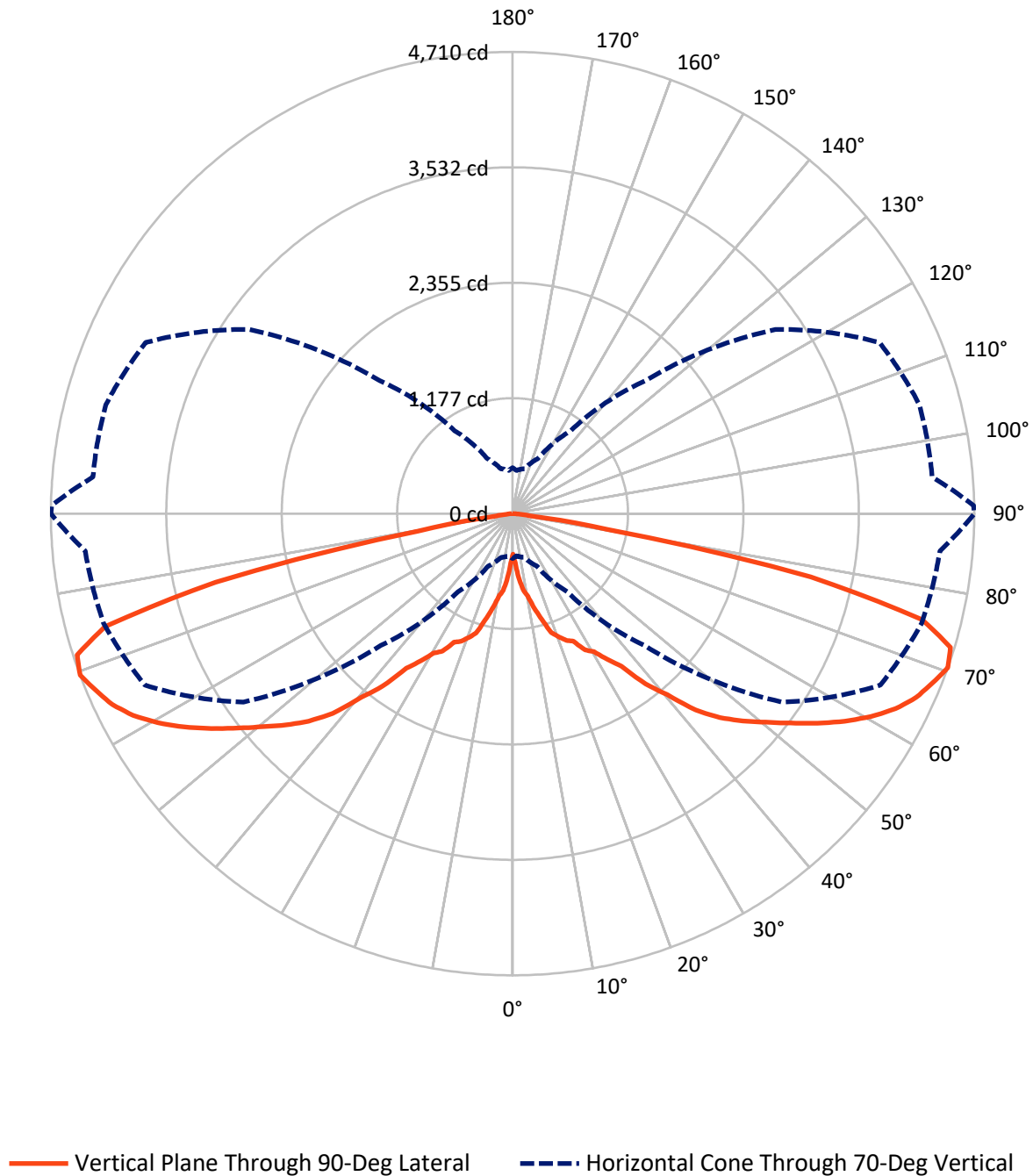


Based on 15 foot mounting height. Maximum calculated value = 5.4 fc

Type III - Short - N/A

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CATALOG NUMBER: PMM-SA2C-735-U-RW

## Luminous Intensity Polar Plot



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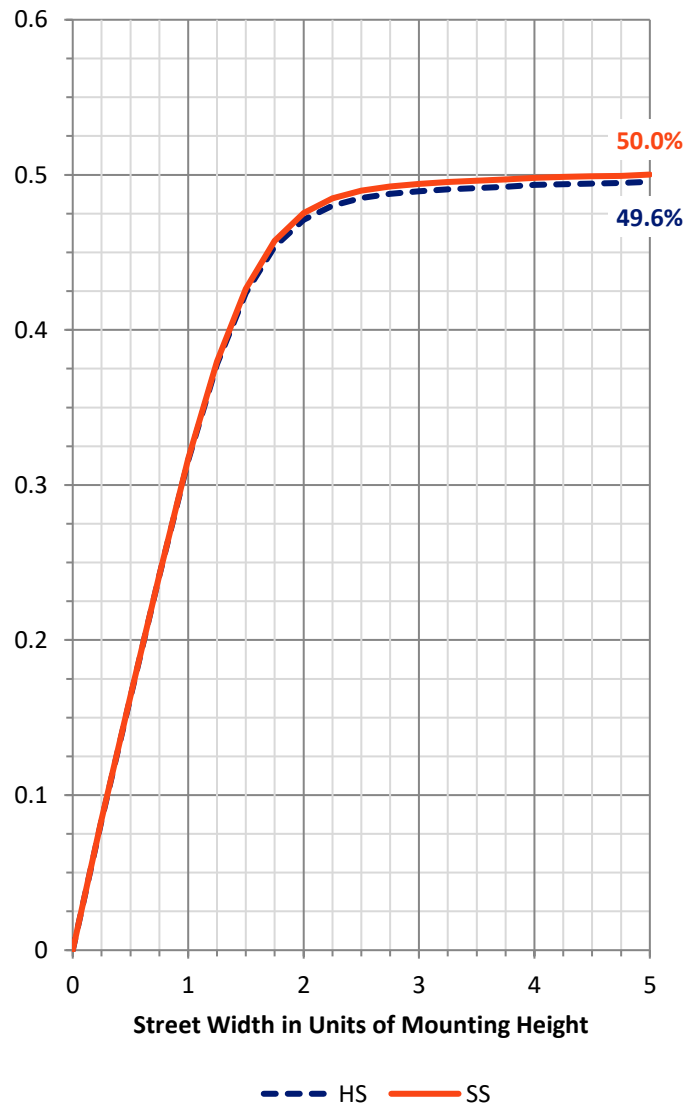
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 5879.4   | 0.0    | 5879.4  |
|                    | % Fixture | 49.8     | 0.0    | 49.8    |
| <b>Street Side</b> | Lumens    | 5923.1   | 0.0    | 5923.1  |
|                    | % Fixture | 50.2     | 0.0    | 50.2    |
| <b>Total</b>       | Lumens    | 11802.5  | 0.0    | 11802.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 62.5    | 0.5       |
| 10°-20°   | 286.4   | 2.4       |
| 20°-30°   | 619.2   | 5.2       |
| 30°-40°   | 1181.4  | 10.0      |
| 40°-50°   | 2146.3  | 18.2      |
| 50°-60°   | 3015.0  | 25.5      |
| 60°-70°   | 2878.8  | 24.4      |
| 70°-80°   | 1477.4  | 12.5      |
| 80°-90°   | 135.5   | 1.1       |
| 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°    | 11802.5 | 100.0     |
| 0°-180°   | 11802.5 | 100.0     |

**Coefficient of Utilization**



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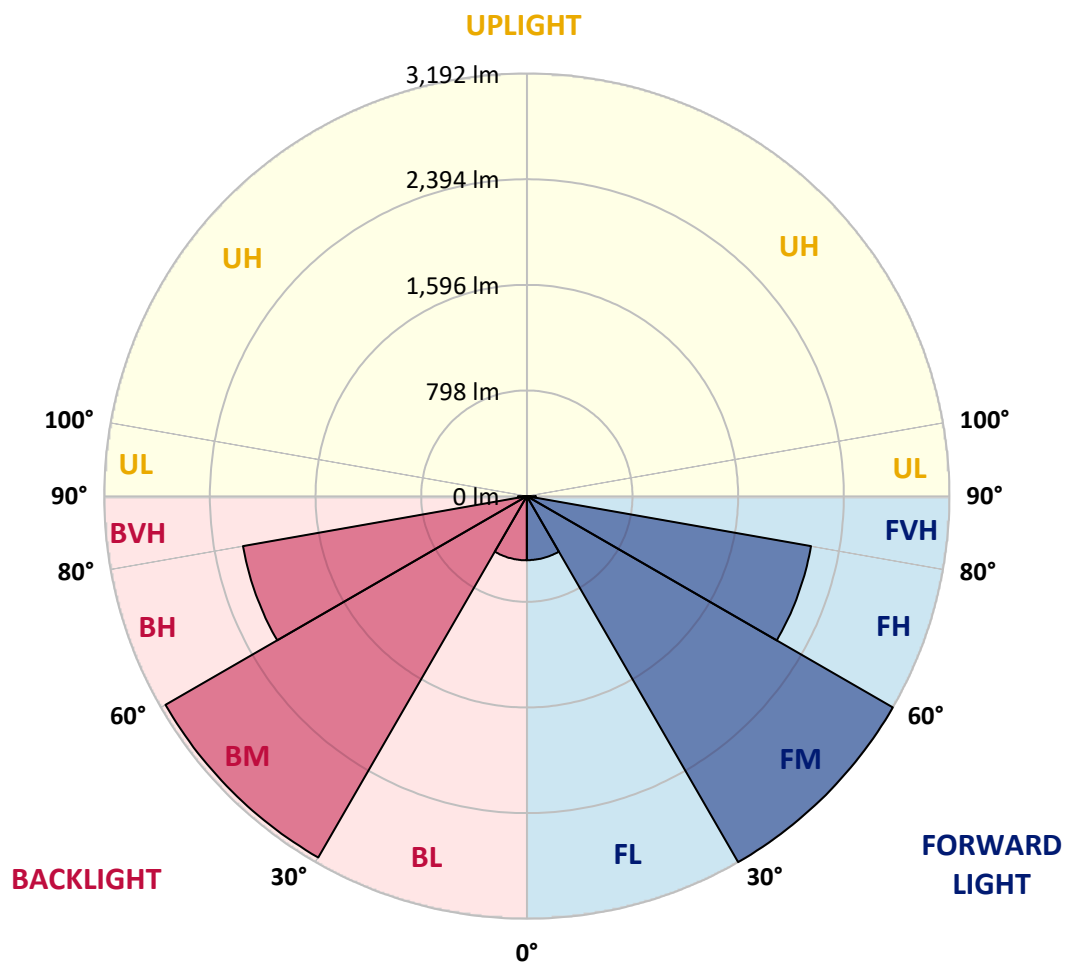
CATALOG NUMBER: PMM-SA2C-735-U-RW

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 483.6  | 4.1       |                         |      |         |
| FM   | (30°-60°)   | 3191.5 | 27.0      |                         |      |         |
| FH   | (60°-80°)   | 2179.3 | 18.5      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 68.7   | 0.6       |                         |      | G1/100  |
| BL   | (0°-30°)    | 484.5  | 4.1       | B1/500                  |      |         |
| BM   | (30°-60°)   | 3151.2 | 26.7      | B3/5000                 |      |         |
| BH   | (60°-80°)   | 2176.9 | 18.4      | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 66.7   | 0.6       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G3**

Type III Short





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CATALOG NUMBER: PMM-SA2C-735-U-RW

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    | 90°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  |
| 2.5°  | 501.8  | 483.1  | 459.7  | 473.5  | 479.3  | 489.4  | 487.9  | 483.1  | 462.5  | 497.0  | 500.8  |
| 5°    | 628.1  | 598.4  | 587.4  | 585.5  | 588.4  | 578.8  | 609.9  | 600.8  | 617.6  | 648.6  | 655.8  |
| 7.5°  | 715.1  | 693.1  | 669.6  | 676.8  | 647.2  | 642.9  | 683.0  | 718.9  | 728.0  | 785.0  | 788.8  |
| 10°   | 756.3  | 734.8  | 740.9  | 736.6  | 733.3  | 761.0  | 779.7  | 806.0  | 843.8  | 849.1  | 857.2  |
| 12.5° | 791.2  | 799.8  | 827.1  | 826.0  | 871.0  | 920.3  | 913.2  | 940.5  | 946.6  | 1012.6 | 992.5  |
| 15°   | 879.6  | 897.3  | 895.5  | 912.2  | 931.8  | 1012.6 | 1013.1 | 1059.5 | 1102.1 | 1127.9 | 1121.2 |
| 17.5° | 1009.3 | 1015.5 | 989.6  | 990.7  | 1047.6 | 1080.6 | 1117.4 | 1109.3 | 1220.2 | 1271.0 | 1274.2 |
| 20°   | 1086.8 | 1102.5 | 1072.9 | 1033.7 | 1134.6 | 1180.1 | 1200.6 | 1153.2 | 1271.9 | 1340.3 | 1340.3 |
| 22.5° | 1222.2 | 1181.5 | 1136.6 | 1110.2 | 1199.2 | 1247.5 | 1245.1 | 1231.8 | 1294.8 | 1415.8 | 1404.4 |
| 25°   | 1296.8 | 1273.8 | 1251.3 | 1258.0 | 1303.0 | 1327.9 | 1360.9 | 1329.8 | 1389.1 | 1479.0 | 1441.2 |
| 27.5° | 1438.4 | 1395.8 | 1285.3 | 1373.3 | 1373.3 | 1354.6 | 1424.5 | 1439.3 | 1400.6 | 1546.9 | 1575.1 |
| 30°   | 1598.6 | 1583.8 | 1427.4 | 1520.7 | 1492.0 | 1439.3 | 1573.3 | 1563.7 | 1498.7 | 1647.9 | 1635.0 |
| 32.5° | 1750.2 | 1799.0 | 1650.7 | 1599.6 | 1642.6 | 1662.7 | 1592.4 | 1621.1 | 1633.6 | 1777.5 | 1771.3 |
| 35°   | 1982.7 | 2023.8 | 1827.2 | 1814.3 | 1742.6 | 1723.9 | 1777.5 | 1787.1 | 1788.0 | 1939.7 | 1911.9 |
| 37.5° | 2385.0 | 2325.6 | 2131.5 | 2040.1 | 2048.2 | 2025.8 | 2036.3 | 1960.7 | 1971.3 | 2191.2 | 2205.1 |
| 40°   | 2679.2 | 2612.2 | 2396.0 | 2330.5 | 2169.7 | 2265.8 | 2180.7 | 2173.1 | 2152.0 | 2437.2 | 2429.4 |
| 42.5° | 3003.9 | 2912.1 | 2672.9 | 2585.4 | 2414.6 | 2375.4 | 2336.2 | 2424.7 | 2418.9 | 2683.0 | 2741.3 |
| 45°   | 3249.3 | 3063.8 | 2938.9 | 2884.3 | 2782.0 | 2685.9 | 2648.5 | 2688.2 | 2670.1 | 2866.2 | 2968.1 |
| 47.5° | 3404.3 | 3243.1 | 3099.6 | 2984.8 | 2886.7 | 3122.5 | 2933.6 | 2880.5 | 2843.7 | 3063.3 | 3161.3 |
| 50°   | 3527.7 | 3341.6 | 3172.3 | 3134.1 | 3211.5 | 3420.1 | 3122.1 | 3004.9 | 3049.9 | 3211.5 | 3345.0 |
| 52.5° | 3561.2 | 3364.1 | 3212.1 | 3187.7 | 3397.2 | 3434.9 | 3386.6 | 3189.5 | 3177.6 | 3389.5 | 3550.7 |
| 55°   | 3458.8 | 3269.9 | 3197.7 | 3331.1 | 3562.6 | 3531.0 | 3604.7 | 3479.0 | 3394.3 | 3571.3 | 3774.1 |
| 57.5° | 3195.3 | 3007.8 | 2990.5 | 3182.8 | 3474.6 | 3743.4 | 3779.8 | 3680.3 | 3569.3 | 3756.9 | 3996.0 |
| 60°   | 2762.4 | 2591.2 | 2634.7 | 2847.1 | 3287.2 | 3669.8 | 3863.1 | 3772.1 | 3737.7 | 3924.3 | 4201.7 |
| 62.5° | 2088.5 | 1955.0 | 2071.2 | 2367.3 | 2944.6 | 3574.6 | 3977.8 | 3963.5 | 3913.7 | 4102.2 | 4383.5 |
| 65°   | 1331.7 | 1261.4 | 1380.0 | 1680.9 | 2413.2 | 3401.5 | 4032.9 | 4052.0 | 4097.9 | 4239.5 | 4524.1 |
| 67.5° | 774.0  | 736.6  | 808.9  | 1055.2 | 1718.6 | 2793.0 | 3930.5 | 4205.1 | 4229.0 | 4310.3 | 4616.5 |
| 70°   | 457.8  | 433.4  | 463.0  | 592.7  | 973.0  | 1902.8 | 3352.6 | 4138.1 | 4318.9 | 4375.4 | 4709.7 |
| 72.5° | 349.2  | 326.2  | 313.3  | 350.7  | 508.0  | 983.0  | 2266.9 | 3507.7 | 4246.7 | 4332.3 | 4670.5 |
| 75°   | 301.8  | 279.9  | 264.5  | 267.8  | 302.3  | 466.8  | 1228.9 | 2508.9 | 3618.6 | 3944.9 | 4314.1 |
| 77.5° | 259.3  | 239.6  | 228.6  | 227.7  | 232.0  | 256.4  | 513.8  | 1360.4 | 2266.4 | 2835.6 | 3110.1 |
| 80°   | 207.6  | 192.3  | 189.9  | 189.9  | 183.7  | 181.8  | 255.4  | 517.6  | 862.5  | 1022.7 | 980.6  |
| 82.5° | 151.7  | 136.3  | 151.7  | 149.7  | 140.1  | 132.5  | 162.7  | 223.9  | 266.0  | 210.0  | 166.0  |
| 85°   | 102.4  | 88.5   | 100.0  | 101.9  | 92.8   | 68.8   | 97.5   | 111.9  | 114.8  | 71.7   | 59.3   |
| 87.5° | 35.9   | 34.9   | 56.5   | 49.3   | 40.2   | 23.5   | 35.9   | 38.8   | 40.6   | 25.3   | 17.2   |
| 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: PMM-SA2C-735-U-RW

**CANDELA DISTRIBUTION (continued):**

|       | 91°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  | 414.3  |
| 2.5°  | 502.2  | 496.5  | 467.8  | 472.1  | 483.1  | 488.3  | 493.7  | 472.1  | 461.6  | 495.1  | 491.7  |
| 5°    | 657.7  | 636.7  | 613.3  | 609.9  | 611.3  | 590.7  | 602.7  | 597.4  | 599.9  | 621.4  | 625.7  |
| 7.5°  | 787.9  | 762.4  | 731.4  | 707.0  | 664.9  | 631.4  | 659.7  | 674.0  | 678.3  | 716.6  | 730.9  |
| 10°   | 858.1  | 836.6  | 827.5  | 781.6  | 767.7  | 763.4  | 756.7  | 733.7  | 759.2  | 750.0  | 757.2  |
| 12.5° | 995.9  | 991.6  | 944.3  | 914.1  | 917.0  | 925.1  | 883.0  | 860.1  | 827.1  | 878.7  | 860.1  |
| 15°   | 1113.1 | 1131.7 | 1084.4 | 1029.4 | 1002.1 | 1016.0 | 984.0  | 950.4  | 920.8  | 936.5  | 916.5  |
| 17.5° | 1262.8 | 1262.3 | 1170.0 | 1111.2 | 1108.8 | 1107.9 | 1060.4 | 986.8  | 1022.2 | 1011.2 | 1012.2 |
| 20°   | 1342.2 | 1329.3 | 1214.5 | 1146.6 | 1204.5 | 1183.9 | 1141.3 | 1046.6 | 1087.7 | 1101.2 | 1109.7 |
| 22.5° | 1408.7 | 1401.5 | 1262.3 | 1212.6 | 1249.9 | 1250.4 | 1207.8 | 1158.1 | 1152.8 | 1194.4 | 1172.0 |
| 25°   | 1455.1 | 1483.8 | 1352.8 | 1340.8 | 1357.1 | 1340.8 | 1299.1 | 1266.6 | 1245.5 | 1307.8 | 1245.5 |
| 27.5° | 1565.1 | 1524.5 | 1366.6 | 1434.6 | 1444.5 | 1362.7 | 1414.9 | 1376.6 | 1318.3 | 1395.4 | 1420.7 |
| 30°   | 1643.5 | 1667.5 | 1464.2 | 1566.6 | 1554.6 | 1479.0 | 1500.5 | 1499.1 | 1429.3 | 1579.4 | 1561.7 |
| 32.5° | 1778.4 | 1749.7 | 1623.5 | 1615.3 | 1644.0 | 1640.7 | 1604.3 | 1622.0 | 1639.2 | 1748.3 | 1774.6 |
| 35°   | 1916.7 | 1947.3 | 1725.3 | 1780.4 | 1772.3 | 1720.6 | 1815.8 | 1804.8 | 1855.9 | 2079.8 | 2005.6 |
| 37.5° | 2228.6 | 2082.7 | 1954.0 | 1946.9 | 2001.4 | 2009.5 | 1978.9 | 2027.2 | 2137.6 | 2309.9 | 2389.3 |
| 40°   | 2432.8 | 2366.4 | 2147.7 | 2156.4 | 2080.7 | 2210.9 | 2124.8 | 2280.2 | 2364.4 | 2654.8 | 2626.6 |
| 42.5° | 2741.8 | 2579.7 | 2369.7 | 2398.4 | 2383.0 | 2320.4 | 2433.8 | 2513.6 | 2634.2 | 2855.6 | 2998.7 |
| 45°   | 2971.9 | 2749.4 | 2649.9 | 2632.3 | 2630.4 | 2739.5 | 2725.1 | 2852.8 | 2895.9 | 3062.3 | 3180.9 |
| 47.5° | 3146.5 | 2957.6 | 2810.3 | 2830.3 | 2772.0 | 3083.3 | 2917.4 | 2957.1 | 3044.1 | 3201.0 | 3339.2 |
| 50°   | 3353.6 | 3143.1 | 2975.7 | 3025.5 | 3167.5 | 3287.2 | 3136.9 | 3069.0 | 3111.5 | 3296.7 | 3450.7 |
| 52.5° | 3545.4 | 3323.9 | 3139.8 | 3181.4 | 3413.4 | 3358.9 | 3342.6 | 3170.9 | 3165.7 | 3314.4 | 3489.5 |
| 55°   | 3769.7 | 3520.1 | 3357.5 | 3489.5 | 3571.8 | 3504.3 | 3478.5 | 3269.5 | 3140.2 | 3223.1 | 3388.0 |
| 57.5° | 3989.8 | 3714.3 | 3552.6 | 3579.9 | 3684.1 | 3617.2 | 3423.4 | 3101.6 | 2940.3 | 2956.6 | 3123.6 |
| 60°   | 4195.9 | 3892.7 | 3759.3 | 3732.9 | 3816.2 | 3553.6 | 3214.4 | 2794.0 | 2580.2 | 2540.9 | 2685.3 |
| 62.5° | 4372.5 | 4041.9 | 3915.7 | 3843.9 | 3923.3 | 3555.9 | 2888.7 | 2300.3 | 2065.5 | 1932.5 | 2044.9 |
| 65°   | 4512.6 | 4165.8 | 4075.9 | 4038.6 | 4067.3 | 3339.8 | 2381.2 | 1689.0 | 1401.0 | 1253.7 | 1319.2 |
| 67.5° | 4605.9 | 4235.1 | 4194.1 | 4242.9 | 3860.2 | 2781.5 | 1764.1 | 1081.0 | 814.6  | 734.3  | 775.4  |
| 70°   | 4702.5 | 4296.4 | 4295.0 | 4129.0 | 3273.3 | 1917.6 | 1030.3 | 623.2  | 474.0  | 443.0  | 468.8  |
| 72.5° | 4670.0 | 4223.7 | 4245.2 | 3611.0 | 2268.3 | 1025.0 | 543.9  | 352.5  | 320.9  | 331.9  | 354.9  |
| 75°   | 4324.7 | 3840.1 | 3736.3 | 2595.9 | 1286.7 | 476.4  | 313.3  | 266.9  | 265.0  | 281.7  | 304.3  |
| 77.5° | 3136.9 | 2674.3 | 2399.8 | 1471.4 | 551.5  | 257.9  | 230.6  | 222.9  | 222.9  | 236.3  | 256.4  |
| 80°   | 1034.2 | 895.0  | 932.7  | 569.2  | 260.7  | 177.9  | 179.9  | 183.2  | 182.2  | 185.6  | 202.3  |
| 82.5° | 169.8  | 176.1  | 272.2  | 232.4  | 157.3  | 121.5  | 135.8  | 142.5  | 144.5  | 129.1  | 146.8  |
| 85°   | 60.3   | 67.9   | 115.8  | 107.6  | 90.9   | 61.2   | 89.4   | 100.0  | 98.6   | 86.1   | 95.2   |
| 87.5° | 18.6   | 23.9   | 42.1   | 32.5   | 27.3   | 16.8   | 33.4   | 39.2   | 49.3   | 20.1   | 18.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

STREETWORKS

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

### Test Information

Test Method: LM-79-08  
 Report Number: SP1-2101-121-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry:  $4\pi$   
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-735-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

### Spectral Parameters

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 3388   | CRI (Ra): | 73.1 |      |       |
| CIE u':                   | 0.2371 | R1:       | 68.9 | R9:  | -34.6 |
| CIE v':                   | 0.5177 | R2:       | 81.1 | R10: | 57.8  |
| Duv:                      | 0.0032 | R3:       | 93.1 | R11: | 68.6  |
| CIE x:                    | 0.4153 | R4:       | 71.6 | R12: | 53.9  |
| CIE y:                    | 0.4030 | R5:       | 69.4 | R13: | 70.9  |
| CIE z:                    | 0.1817 | R6:       | 75.0 | R14: | 96.2  |
| Peak Wavelength (nm):     | 590    | R7:       | 79.5 |      |       |
| Dominant Wavelength (nm): | 580    | R8:       | 46.4 |      |       |
| Purity:                   | 45.7   |           |      |      |       |
| Rf:                       | 76.9   |           |      |      |       |
| Rg:                       | 94.4   |           |      |      |       |



### Test Conditions

Stabilization Time: 81M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 4-step quadrangle

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### Photopic Flux vs. Wavelength



#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2672             | 0.0              | 490       | 34553            | 4.9              | 620       | 136720           | 35.6             | 750       | 5870             | 0.0              | 880       | 4216             | 0.0              |
| 365       | 2252             | 0.0              | 495       | 44336            | 8.0              | 625       | 126308           | 27.9             | 755       | 5421             | 0.0              | 885       | 4132             | 0.0              |
| 370       | 2217             | 0.0              | 500       | 54643            | 12.1             | 630       | 114625           | 20.7             | 760       | 5097             | 0.0              | 890       | 3992             | 0.0              |
| 375       | 2697             | 0.0              | 505       | 64676            | 18.1             | 635       | 103216           | 15.5             | 765       | 4626             | 0.0              | 895       | 3214             | 0.0              |
| 380       | 3039             | 0.0              | 510       | 73825            | 25.4             | 640       | 92605            | 11.1             | 770       | 3782             | 0.0              | 900       | 2580             | 0.0              |
| 385       | 2655             | 0.0              | 515       | 81872            | 33.9             | 645       | 83234            | 8.0              | 775       | 3506             | 0.0              | 905       | 1776             | 0.0              |
| 390       | 2357             | 0.0              | 520       | 88574            | 43.0             | 650       | 73263            | 5.4              | 780       | 3507             | 0.0              | 910       | 3995             | 0.0              |
| 395       | 2186             | 0.0              | 525       | 93289            | 50.1             | 655       | 64627            | 3.7              | 785       | 3267             | 0.0              | 915       | 4288             | 0.0              |
| 400       | 2015             | 0.0              | 530       | 98393            | 57.9             | 660       | 56614            | 2.4              | 790       | 2849             | 0.0              | 920       | 2446             | 0.0              |
| 405       | 2234             | 0.0              | 535       | 103269           | 64.0             | 665       | 49537            | 1.6              | 795       | 3037             | 0.0              | 925       | 3009             | 0.0              |
| 410       | 3412             | 0.0              | 540       | 107316           | 69.9             | 670       | 42866            | 0.9              | 800       | 2716             | 0.0              | 930       | 3026             | 0.0              |
| 415       | 6135             | 0.0              | 545       | 113101           | 75.3             | 675       | 36708            | 0.6              | 805       | 2648             | 0.0              | 935       | 4734             | 0.0              |
| 420       | 12146            | 0.0              | 550       | 120690           | 82.0             | 680       | 31814            | 0.4              | 810       | 3187             | 0.0              | 940       | 3719             | 0.0              |
| 425       | 23983            | 0.1              | 555       | 128583           | 87.8             | 685       | 27485            | 0.2              | 815       | 2931             | 0.0              | 945       | 1480             | 0.0              |
| 430       | 42142            | 0.3              | 560       | 137796           | 93.6             | 690       | 23698            | 0.1              | 820       | 2717             | 0.0              | 950       | 3450             | 0.0              |
| 435       | 68228            | 0.8              | 565       | 146577           | 97.5             | 695       | 20309            | 0.1              | 825       | 2236             | 0.0              | 955       | 5051             | 0.0              |
| 440       | 99323            | 1.6              | 570       | 154581           | 100.5            | 700       | 17890            | 0.1              | 830       | 2628             | 0.0              | 960       | 3176             | 0.0              |
| 445       | 115584           | 2.4              | 575       | 162633           | 101.2            | 705       | 15500            | 0.0              | 835       | 3140             | 0.0              | 965       | 5178             | 0.0              |
| 450       | 94997            | 2.5              | 580       | 168101           | 99.9             | 710       | 13699            | 0.0              | 840       | 3675             | 0.0              | 970       | 6385             | 0.0              |
| 455       | 61433            | 2.1              | 585       | 173145           | 96.2             | 715       | 12398            | 0.0              | 845       | 3283             | 0.0              | 975       | 3810             | 0.0              |
| 460       | 43373            | 1.8              | 590       | 174675           | 90.3             | 720       | 11147            | 0.0              | 850       | 3055             | 0.0              | 980       | 4322             | 0.0              |
| 465       | 32472            | 1.7              | 595       | 173724           | 82.3             | 725       | 9761             | 0.0              | 855       | 2932             | 0.0              | 985       | 4200             | 0.0              |
| 470       | 24257            | 1.5              | 600       | 171241           | 73.8             | 730       | 8651             | 0.0              | 860       | 3382             | 0.0              | 990       | 4661             | 0.0              |
| 475       | 21690            | 1.7              | 605       | 165134           | 64.0             | 735       | 7730             | 0.0              | 865       | 2605             | 0.0              | 995       | 6746             | 0.0              |
| 480       | 23173            | 2.2              | 610       | 156652           | 53.8             | 740       | 6847             | 0.0              | 870       | 3325             | 0.0              | 1000      | 4150             | 0.0              |
| 485       | 27564            | 3.3              | 615       | 147879           | 44.6             | 745       | 6124             | 0.0              | 875       | 3325             | 0.0              |           |                  |                  |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: 12126

S/P: 1.36

| $\lambda$<br>(nm) | Power<br>( $\mu\text{W/nm}$ ) | Lumens<br>( $\Phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W/nm}$ ) | Lumens<br>( $\Phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W/nm}$ ) | Lumens<br>( $\Phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W/nm}$ ) | Lumens<br>( $\Phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W/nm}$ ) | Lumens<br>( $\Phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 2672                          | 0.0                            | 490               | 34553                         | 53.2                           | 620               | 136720                        | 1.7                            | 750               | 5870                          | 0.0                            | 880               | 4216                          | 0.0                            |
| 365               | 2252                          | 0.0                            | 495               | 44336                         | 71.7                           | 625               | 126308                        | 1.1                            | 755               | 5421                          | 0.0                            | 885               | 4132                          | 0.0                            |
| 370               | 2217                          | 0.0                            | 500               | 54643                         | 91.4                           | 630               | 114625                        | 0.6                            | 760               | 5097                          | 0.0                            | 890               | 3992                          | 0.0                            |
| 375               | 2697                          | 0.0                            | 505               | 64676                         | 110.0                          | 635               | 103216                        | 0.4                            | 765               | 4626                          | 0.0                            | 895               | 3214                          | 0.0                            |
| 380               | 3039                          | 0.0                            | 510               | 73825                         | 125.1                          | 640               | 92605                         | 0.2                            | 770               | 3782                          | 0.0                            | 900               | 2580                          | 0.0                            |
| 385               | 2655                          | 0.0                            | 515               | 81872                         | 135.7                          | 645               | 83234                         | 0.1                            | 775               | 3506                          | 0.0                            | 905               | 1776                          | 0.0                            |
| 390               | 2357                          | 0.0                            | 520               | 88574                         | 140.8                          | 650               | 73263                         | 0.1                            | 780               | 3507                          | 0.0                            | 910               | 3995                          | 0.0                            |
| 395               | 2186                          | 0.0                            | 525               | 93289                         | 139.6                          | 655               | 64627                         | 0.1                            | 785               | 3267                          | 0.0                            | 915               | 4288                          | 0.0                            |
| 400               | 2015                          | 0.0                            | 530               | 98393                         | 135.7                          | 660               | 56614                         | 0.0                            | 790               | 2849                          | 0.0                            | 920               | 2446                          | 0.0                            |
| 405               | 2234                          | 0.1                            | 535               | 103269                        | 128.7                          | 665               | 49537                         | 0.0                            | 795               | 3037                          | 0.0                            | 925               | 3009                          | 0.0                            |
| 410               | 3412                          | 0.2                            | 540               | 107316                        | 118.6                          | 670               | 42866                         | 0.0                            | 800               | 2716                          | 0.0                            | 930               | 3026                          | 0.0                            |
| 415               | 6135                          | 0.6                            | 545               | 113101                        | 108.4                          | 675               | 36708                         | 0.0                            | 805               | 2648                          | 0.0                            | 935               | 4734                          | 0.0                            |
| 420               | 12146                         | 2.0                            | 550               | 120690                        | 98.7                           | 680               | 31814                         | 0.0                            | 810               | 3187                          | 0.0                            | 940               | 3719                          | 0.0                            |
| 425               | 23983                         | 5.9                            | 555               | 128583                        | 87.9                           | 685               | 27485                         | 0.0                            | 815               | 2931                          | 0.0                            | 945               | 1480                          | 0.0                            |
| 430               | 42142                         | 14.3                           | 560               | 137796                        | 77.0                           | 690               | 23698                         | 0.0                            | 820               | 2717                          | 0.0                            | 950               | 3450                          | 0.0                            |
| 435               | 68228                         | 30.5                           | 565               | 146577                        | 65.8                           | 695               | 20309                         | 0.0                            | 825               | 2236                          | 0.0                            | 955               | 5051                          | 0.0                            |
| 440               | 99323                         | 55.5                           | 570               | 154581                        | 54.6                           | 700               | 17890                         | 0.0                            | 830               | 2628                          | 0.0                            | 960               | 3176                          | 0.0                            |
| 445               | 115584                        | 77.4                           | 575               | 162633                        | 44.3                           | 705               | 15500                         | 0.0                            | 835               | 3140                          | 0.0                            | 965               | 5178                          | 0.0                            |
| 450               | 94997                         | 73.6                           | 580               | 168101                        | 34.6                           | 710               | 13699                         | 0.0                            | 840               | 3675                          | 0.0                            | 970               | 6385                          | 0.0                            |
| 455               | 61433                         | 53.7                           | 585               | 173145                        | 26.5                           | 715               | 12398                         | 0.0                            | 845               | 3283                          | 0.0                            | 975               | 3810                          | 0.0                            |
| 460               | 43373                         | 41.9                           | 590               | 174675                        | 19.5                           | 720               | 11147                         | 0.0                            | 850               | 3055                          | 0.0                            | 980               | 4322                          | 0.0                            |
| 465               | 32472                         | 34.3                           | 595               | 173724                        | 13.9                           | 725               | 9761                          | 0.0                            | 855               | 2932                          | 0.0                            | 985               | 4200                          | 0.0                            |
| 470               | 24257                         | 27.9                           | 600               | 171241                        | 9.7                            | 730               | 8651                          | 0.0                            | 860               | 3382                          | 0.0                            | 990               | 4661                          | 0.0                            |
| 475               | 21690                         | 27.1                           | 605               | 165134                        | 6.5                            | 735               | 7730                          | 0.0                            | 865               | 2605                          | 0.0                            | 995               | 6746                          | 0.0                            |
| 480               | 23173                         | 31.3                           | 610               | 156652                        | 4.2                            | 740               | 6847                          | 0.0                            | 870               | 3325                          | 0.0                            | 1000              | 4150                          | 0.0                            |
| 485               | 27564                         | 40.0                           | 615               | 147879                        | 2.7                            | 745               | 6124                          | 0.0                            | 875               | 3325                          | 0.0                            |                   |                               |                                |

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### Melanopic Flux vs. Wavelength



**Melanopic Lumens: 4490.7**

**M/P: 0.5**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2672             | 0.0              | 490       | 34553            | 28.8             | 620       | 136720           | 0.1              | 750       | 5870             | 0.0              | 880       | 4216             | 0.0              |
| 365       | 2252             | 0.0              | 495       | 44336            | 36.6             | 625       | 126308           | 0.1              | 755       | 5421             | 0.0              | 885       | 4132             | 0.0              |
| 370       | 2217             | 0.0              | 500       | 54643            | 43.9             | 630       | 114625           | 0.0              | 760       | 5097             | 0.0              | 890       | 3992             | 0.0              |
| 375       | 2697             | 0.0              | 505       | 64676            | 49.6             | 635       | 103216           | 0.0              | 765       | 4626             | 0.0              | 895       | 3214             | 0.0              |
| 380       | 3039             | 0.0              | 510       | 73825            | 53.0             | 640       | 92605            | 0.0              | 770       | 3782             | 0.0              | 900       | 2580             | 0.0              |
| 385       | 2655             | 0.0              | 515       | 81872            | 53.5             | 645       | 83234            | 0.0              | 775       | 3506             | 0.0              | 905       | 1776             | 0.0              |
| 390       | 2357             | 0.0              | 520       | 88574            | 51.6             | 650       | 73263            | 0.0              | 780       | 3507             | 0.0              | 910       | 3995             | 0.0              |
| 395       | 2186             | 0.0              | 525       | 93289            | 47.3             | 655       | 64627            | 0.0              | 785       | 3267             | 0.0              | 915       | 4288             | 0.0              |
| 400       | 2015             | 0.0              | 530       | 98393            | 42.5             | 660       | 56614            | 0.0              | 790       | 2849             | 0.0              | 920       | 2446             | 0.0              |
| 405       | 2234             | 0.0              | 535       | 103269           | 37.2             | 665       | 49537            | 0.0              | 795       | 3037             | 0.0              | 925       | 3009             | 0.0              |
| 410       | 3412             | 0.1              | 540       | 107316           | 31.4             | 670       | 42866            | 0.0              | 800       | 2716             | 0.0              | 930       | 3026             | 0.0              |
| 415       | 6135             | 0.4              | 545       | 113101           | 26.3             | 675       | 36708            | 0.0              | 805       | 2648             | 0.0              | 935       | 4734             | 0.0              |
| 420       | 12146            | 1.4              | 550       | 120690           | 21.7             | 680       | 31814            | 0.0              | 810       | 3187             | 0.0              | 940       | 3719             | 0.0              |
| 425       | 23983            | 3.7              | 555       | 128583           | 17.3             | 685       | 27485            | 0.0              | 815       | 2931             | 0.0              | 945       | 1480             | 0.0              |
| 430       | 42142            | 8.9              | 560       | 137796           | 13.6             | 690       | 23698            | 0.0              | 820       | 2717             | 0.0              | 950       | 3450             | 0.0              |
| 435       | 68228            | 18.2             | 565       | 146577           | 10.3             | 695       | 20309            | 0.0              | 825       | 2236             | 0.0              | 955       | 5051             | 0.0              |
| 440       | 99323            | 33.2             | 570       | 154581           | 7.6              | 700       | 17890            | 0.0              | 830       | 2628             | 0.0              | 960       | 3176             | 0.0              |
| 445       | 115584           | 45.6             | 575       | 162633           | 5.4              | 705       | 15500            | 0.0              | 835       | 3140             | 0.0              | 965       | 5178             | 0.0              |
| 450       | 94997            | 43.8             | 580       | 168101           | 3.8              | 710       | 13699            | 0.0              | 840       | 3675             | 0.0              | 970       | 6385             | 0.0              |
| 455       | 61433            | 32.2             | 585       | 173145           | 2.6              | 715       | 12398            | 0.0              | 845       | 3283             | 0.0              | 975       | 3810             | 0.0              |
| 460       | 43373            | 25.6             | 590       | 174675           | 1.7              | 720       | 11147            | 0.0              | 850       | 3055             | 0.0              | 980       | 4322             | 0.0              |
| 465       | 32472            | 21.2             | 595       | 173724           | 1.1              | 725       | 9761             | 0.0              | 855       | 2932             | 0.0              | 985       | 4200             | 0.0              |
| 470       | 24257            | 17.4             | 600       | 171241           | 0.7              | 730       | 8651             | 0.0              | 860       | 3382             | 0.0              | 990       | 4661             | 0.0              |
| 475       | 21690            | 16.6             | 605       | 165134           | 0.5              | 735       | 7730             | 0.0              | 865       | 2605             | 0.0              | 995       | 6746             | 0.0              |
| 480       | 23173            | 18.6             | 610       | 156652           | 0.3              | 740       | 6847             | 0.0              | 870       | 3325             | 0.0              | 1000      | 4150             | 0.0              |
| 485       | 27564            | 22.7             | 615       | 147879           | 0.2              | 745       | 6124             | 0.0              | 875       | 3325             | 0.0              |           |                  |                  |

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TM-30-18

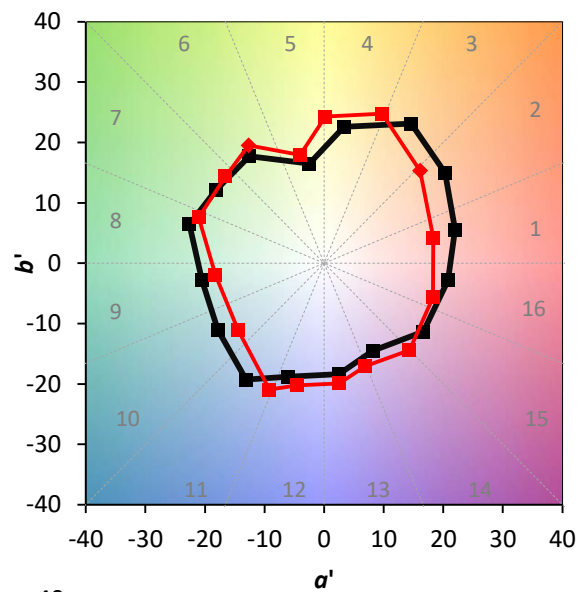
### Summary

$R_f = 76.9$   
 $R_g = 94.4$   
 CIE  $R_a = 73.1$   
 $R_g = -34.6$

### Spectral Power Distribution Comparison



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)