

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: McGRAW-EDISON

Report Number: P438550

Luminaire Tested: **IST-SA1D-740-U-T2-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438550
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-7)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: IST-SA1D-740-U-T2-HSS
Description: IMPACT ELITE LED TRAPEZOID LUMINAIRE
(1) 70 CRI, 4000K, 800mA LIGHTSQUARE WITH 16 LEDS AND TYPE II OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4229 lumens
Efficiency: N/A
Efficacy: 93.6 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B0 - U0 - G1

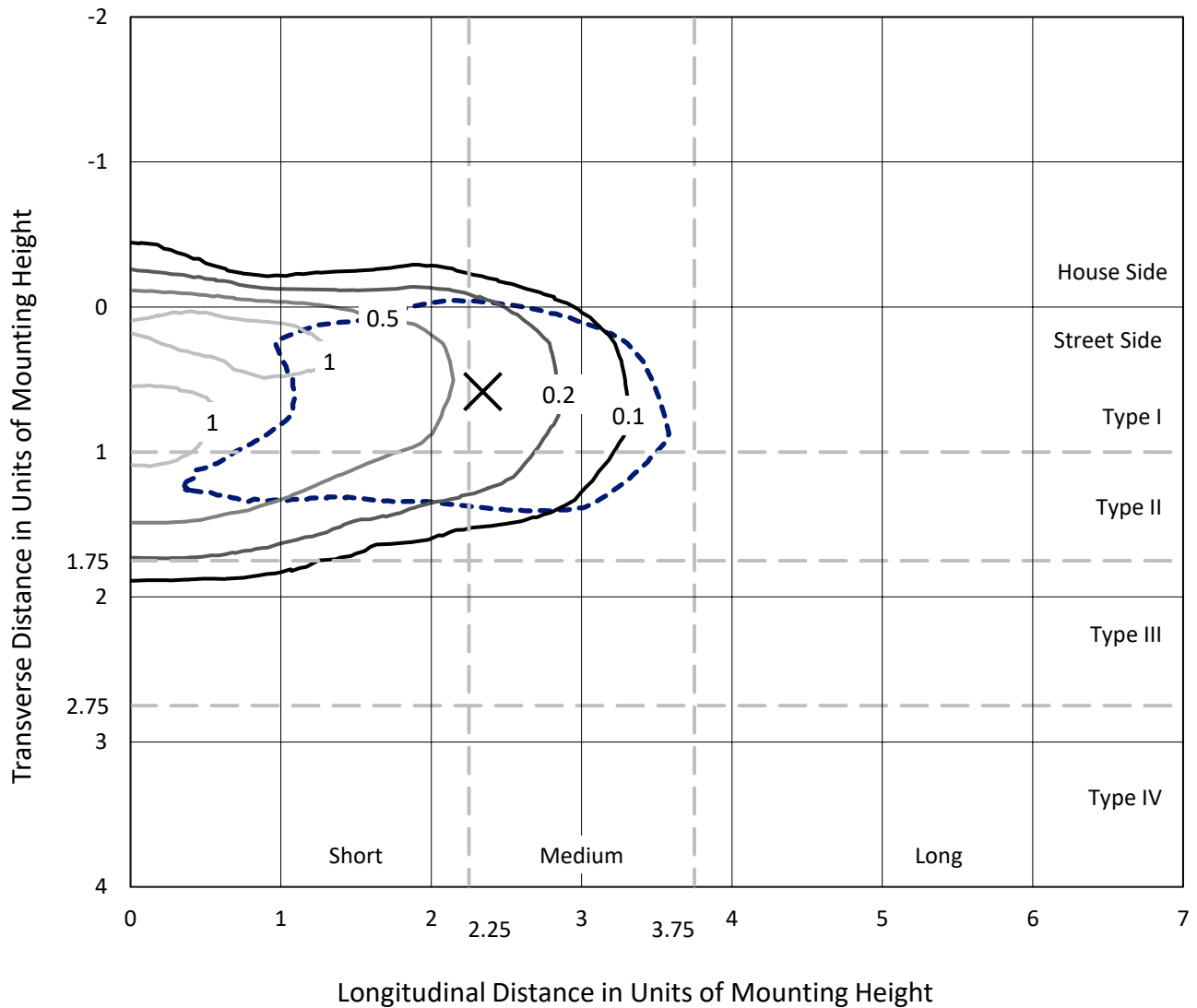
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

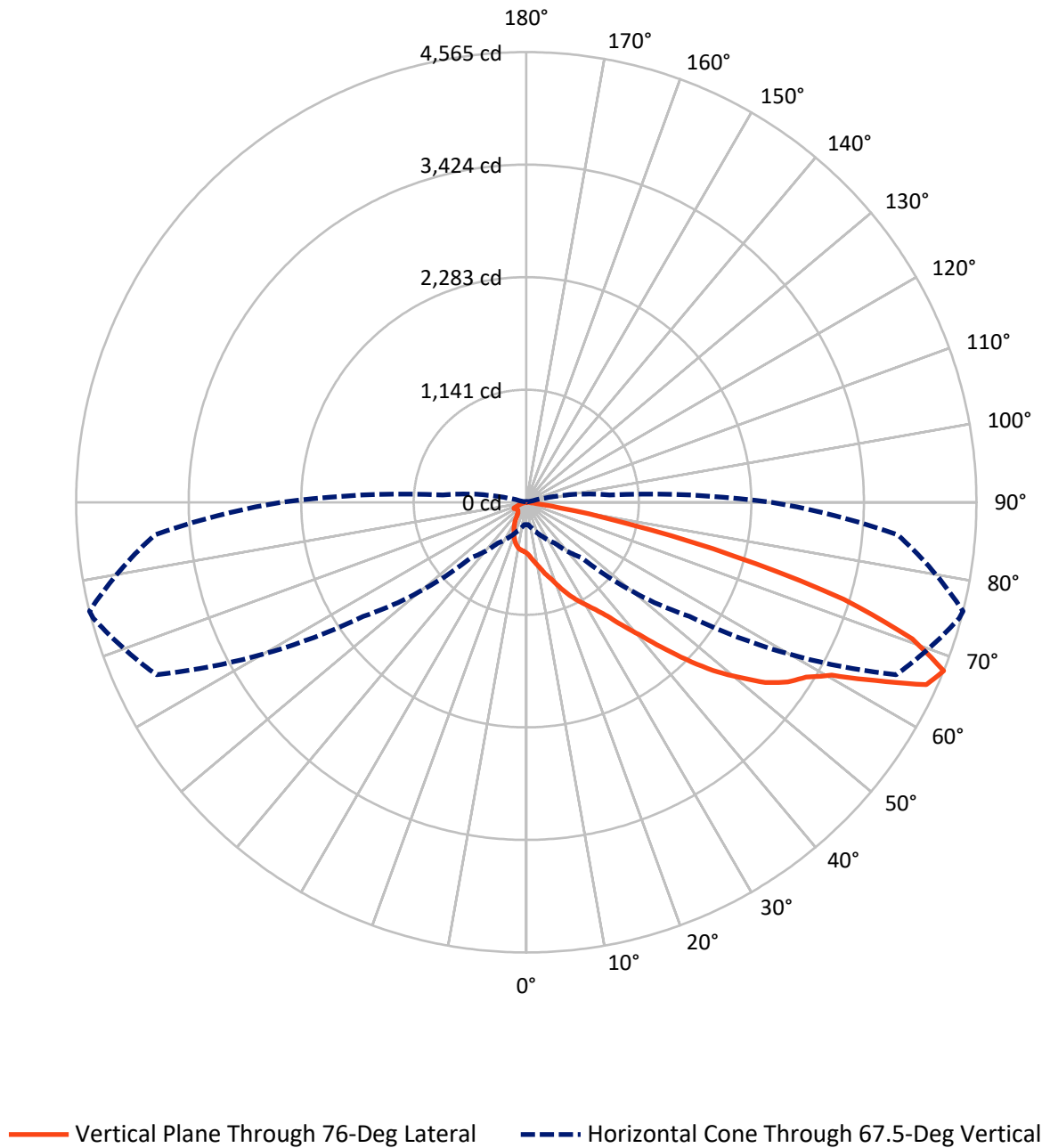
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.3 fc
 Type II - Medium - N/A

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Luminous Intensity Polar Plot



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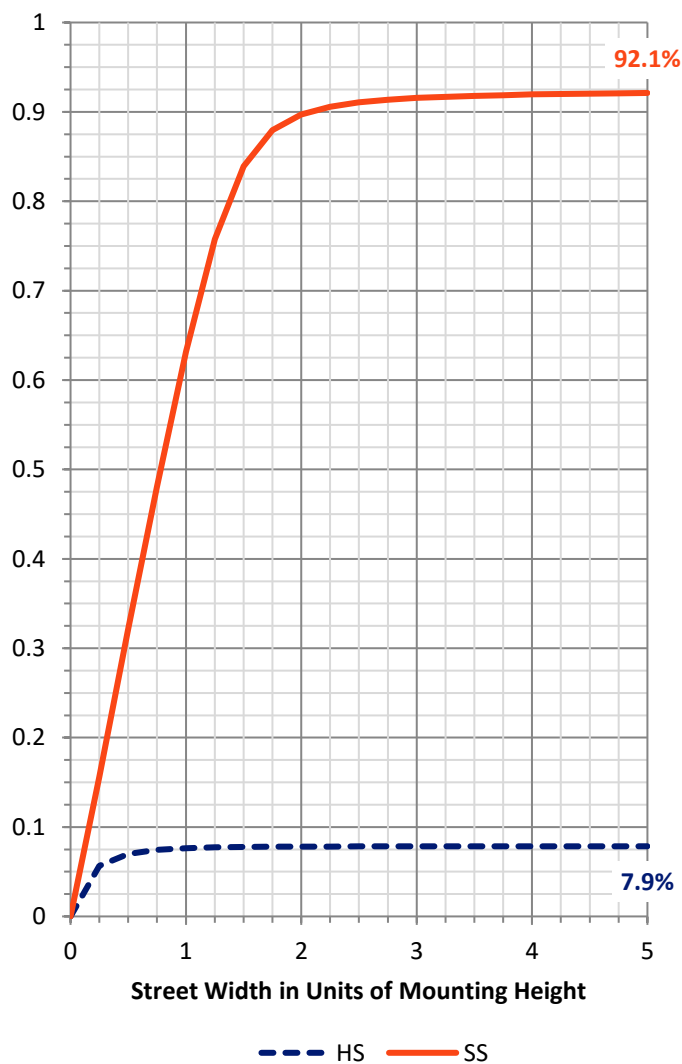
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 334.6 | 0.0 | 334.6 |
| | % Fixture | 7.9 | 0.0 | 7.9 |
| Street Side | Lumens | 3894.4 | 0.0 | 3894.4 |
| | % Fixture | 92.1 | 0.0 | 92.1 |
| Total | Lumens | 4229.0 | 0.0 | 4229.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 49.3 | 1.2 |
| 10°-20° | 137.4 | 3.2 |
| 20°-30° | 237.2 | 5.6 |
| 30°-40° | 422.5 | 10.0 |
| 40°-50° | 752.3 | 17.8 |
| 50°-60° | 1128.1 | 26.7 |
| 60°-70° | 1068.5 | 25.3 |
| 70°-80° | 416.5 | 9.8 |
| 80°-90° | 17.3 | 0.4 |
| 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° | 4229.0 | 100.0 |
| 0°-180° | 4229.0 | 100.0 |

Coefficient of Utilization

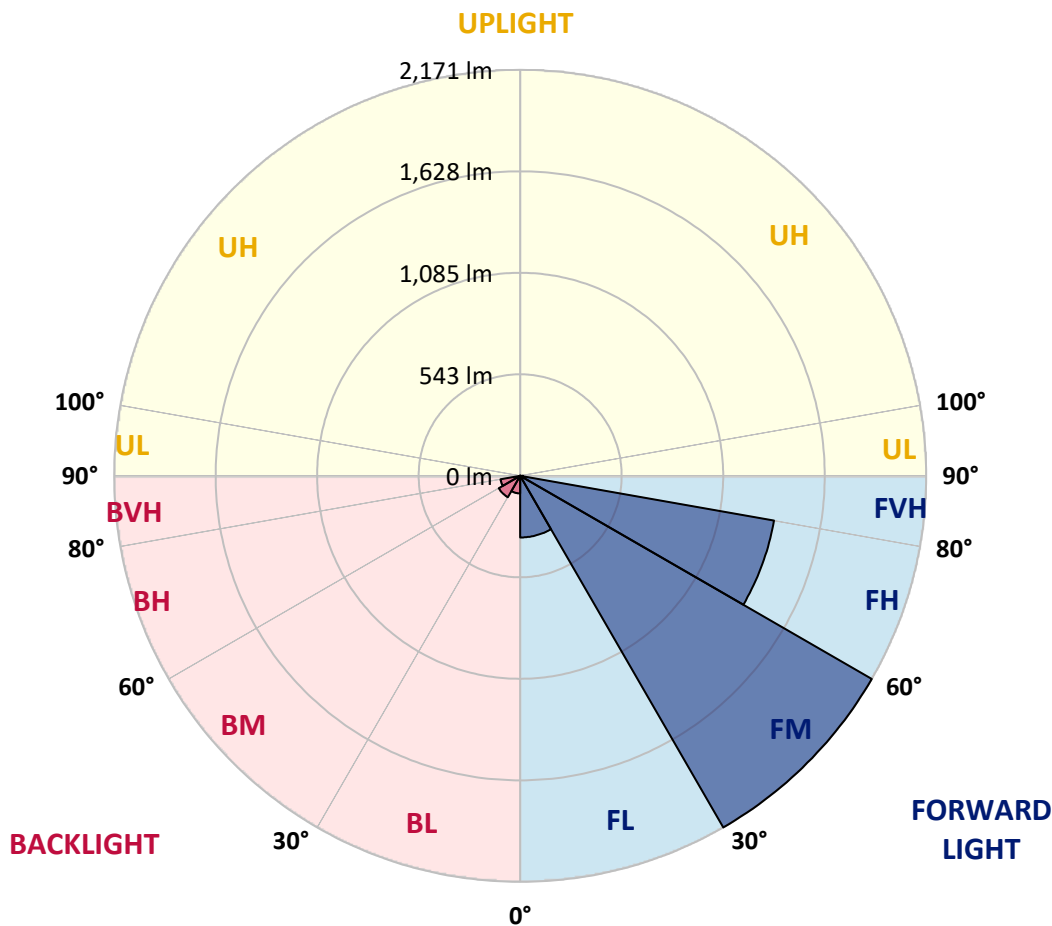


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 329.7 | 7.8 | | | |
| FM (30°-60°) | 2170.8 | 51.3 | | | |
| FH (60°-80°) | 1378.1 | 32.6 | | | G1/1800 |
| FVH (80°-90°) | 15.7 | 0.4 | | | G1/100 |
| BL (0°-30°) | 94.2 | 2.2 | B0/110 | | |
| BM (30°-60°) | 132.1 | 3.1 | B0/220 | | |
| BH (60°-80°) | 106.8 | 2.5 | B0/110 | | G0/110 |
| BVH (80°-90°) | 1.5 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G1
 Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 |
| 2.5° | 609.2 | 603.3 | 599.3 | 597.4 | 593.4 | 581.5 | 571.6 | 553.8 | 538.0 | 538.0 | 528.1 |
| 5° | 664.6 | 662.6 | 654.7 | 650.8 | 648.8 | 640.9 | 623.1 | 601.3 | 575.6 | 573.6 | 549.9 |
| 7.5° | 680.4 | 682.4 | 682.4 | 686.4 | 688.4 | 684.4 | 668.6 | 648.8 | 615.2 | 611.2 | 575.6 |
| 10° | 674.5 | 674.5 | 680.4 | 692.3 | 708.1 | 716.0 | 714.1 | 698.2 | 658.7 | 654.7 | 605.3 |
| 12.5° | 652.7 | 656.7 | 666.6 | 686.4 | 716.0 | 739.8 | 753.6 | 747.7 | 708.1 | 704.2 | 644.8 |
| 15° | 623.1 | 627.0 | 644.8 | 672.5 | 712.1 | 757.6 | 789.2 | 807.0 | 767.5 | 763.5 | 686.4 |
| 17.5° | 581.5 | 585.5 | 605.3 | 646.8 | 702.2 | 765.5 | 826.8 | 862.4 | 828.8 | 816.9 | 729.9 |
| 20° | 565.7 | 569.7 | 585.5 | 619.1 | 684.4 | 765.5 | 860.4 | 927.7 | 902.0 | 892.1 | 785.3 |
| 22.5° | 629.0 | 627.0 | 613.2 | 617.1 | 666.6 | 759.6 | 886.2 | 1008.8 | 989.0 | 975.2 | 844.6 |
| 25° | 743.7 | 751.6 | 731.9 | 686.4 | 678.5 | 753.6 | 904.0 | 1072.1 | 1070.1 | 1056.3 | 905.9 |
| 27.5° | 876.3 | 880.2 | 858.5 | 811.0 | 745.7 | 765.5 | 923.7 | 1135.4 | 1145.3 | 1133.4 | 953.4 |
| 30° | 985.1 | 998.9 | 983.1 | 939.6 | 870.3 | 816.9 | 937.6 | 1192.7 | 1226.4 | 1210.6 | 998.9 |
| 32.5° | 1141.3 | 1147.3 | 1131.4 | 1068.1 | 996.9 | 915.8 | 963.3 | 1242.2 | 1315.4 | 1301.5 | 1052.3 |
| 35° | 1305.5 | 1313.4 | 1283.7 | 1214.5 | 1127.5 | 1036.5 | 1024.6 | 1309.5 | 1444.0 | 1416.3 | 1133.4 |
| 37.5° | 1451.9 | 1459.8 | 1445.9 | 1360.9 | 1275.8 | 1178.9 | 1133.4 | 1400.4 | 1600.2 | 1582.4 | 1234.3 |
| 40° | 1568.6 | 1588.4 | 1584.4 | 1511.2 | 1432.1 | 1345.1 | 1289.7 | 1507.3 | 1780.2 | 1764.4 | 1362.9 |
| 42.5° | 1687.3 | 1701.1 | 1693.2 | 1639.8 | 1584.4 | 1531.0 | 1461.8 | 1655.6 | 2011.7 | 2003.7 | 1523.1 |
| 45° | 1835.6 | 1857.4 | 1847.5 | 1804.0 | 1736.7 | 1724.8 | 1659.6 | 1833.6 | 2286.6 | 2274.7 | 1716.9 |
| 47.5° | 2055.2 | 2074.9 | 2059.1 | 1999.8 | 1922.6 | 1900.9 | 1845.5 | 2035.4 | 2555.6 | 2549.7 | 1908.8 |
| 50° | 2173.9 | 2193.6 | 2235.2 | 2245.1 | 2193.6 | 2076.9 | 2011.7 | 2227.3 | 2796.9 | 2787.0 | 2092.8 |
| 52.5° | 2132.3 | 2150.1 | 2251.0 | 2345.9 | 2458.7 | 2359.8 | 2213.4 | 2434.9 | 3018.5 | 3036.3 | 2272.8 |
| 55° | 1954.3 | 1978.0 | 2122.4 | 2274.7 | 2547.7 | 2680.2 | 2512.1 | 2670.3 | 3192.5 | 3218.2 | 2391.4 |
| 57.5° | 1594.3 | 1622.0 | 1807.9 | 2043.3 | 2411.2 | 2761.3 | 2882.0 | 2994.7 | 3311.2 | 3344.8 | 2543.7 |
| 60° | 955.4 | 998.9 | 1190.8 | 1503.3 | 2013.6 | 2569.5 | 3145.1 | 3461.5 | 3542.6 | 3558.5 | 2868.1 |
| 62.5° | 530.1 | 520.2 | 674.5 | 931.7 | 1388.6 | 2086.8 | 3105.5 | 4029.2 | 3979.8 | 3979.8 | 3422.0 |
| 65° | 318.5 | 328.4 | 407.5 | 553.8 | 807.0 | 1376.7 | 2769.2 | 4379.3 | 4444.6 | 4458.5 | 3871.0 |
| 67.5° | 225.5 | 227.5 | 284.8 | 379.8 | 504.4 | 793.2 | 2019.6 | 4138.0 | 4545.5 | 4565.3 | 3782.0 |
| 70° | 146.4 | 148.4 | 203.7 | 271.0 | 360.0 | 437.1 | 1234.3 | 3410.1 | 4163.7 | 4153.9 | 3344.8 |
| 72.5° | 89.0 | 93.0 | 128.6 | 199.8 | 276.9 | 247.3 | 664.6 | 2464.6 | 3299.3 | 3366.6 | 2624.8 |
| 75° | 55.4 | 59.3 | 77.1 | 138.5 | 193.8 | 168.1 | 292.7 | 1645.7 | 2128.4 | 2179.8 | 1695.2 |
| 77.5° | 31.6 | 35.6 | 49.5 | 79.1 | 138.5 | 116.7 | 138.5 | 864.4 | 1030.6 | 1064.2 | 680.4 |
| 80° | 11.9 | 13.8 | 25.7 | 39.6 | 85.1 | 71.2 | 63.3 | 292.7 | 328.4 | 367.9 | 207.7 |
| 82.5° | 2.0 | 4.0 | 11.9 | 23.7 | 33.6 | 33.6 | 27.7 | 89.0 | 91.0 | 96.9 | 55.4 |
| 85° | 0.0 | 0.0 | 4.0 | 5.9 | 5.9 | 5.9 | 9.9 | 17.8 | 27.7 | 27.7 | 15.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| 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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CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 | 514.3 |
| 2.5° | 518.2 | 514.3 | 498.5 | 482.6 | 470.8 | 460.9 | 445.1 | 445.1 | 439.1 | 433.2 | 435.2 |
| 5° | 532.1 | 520.2 | 490.6 | 460.9 | 433.2 | 407.5 | 385.7 | 375.8 | 362.0 | 358.0 | 356.0 |
| 7.5° | 549.9 | 528.1 | 478.7 | 431.2 | 385.7 | 352.1 | 324.4 | 306.6 | 290.8 | 286.8 | 288.8 |
| 10° | 571.6 | 540.0 | 464.8 | 391.6 | 336.3 | 294.7 | 263.1 | 249.2 | 231.4 | 225.5 | 219.6 |
| 12.5° | 603.3 | 553.8 | 443.1 | 348.1 | 286.8 | 245.3 | 199.8 | 166.2 | 154.3 | 150.3 | 150.3 |
| 15° | 629.0 | 561.8 | 415.4 | 306.6 | 245.3 | 180.0 | 142.4 | 136.5 | 134.5 | 134.5 | 134.5 |
| 17.5° | 658.7 | 567.7 | 381.8 | 267.0 | 189.9 | 132.5 | 124.6 | 124.6 | 122.6 | 122.6 | 120.7 |
| 20° | 690.3 | 569.7 | 346.2 | 231.4 | 134.5 | 118.7 | 112.7 | 110.8 | 106.8 | 104.8 | 104.8 |
| 22.5° | 725.9 | 567.7 | 306.6 | 189.9 | 118.7 | 108.8 | 98.9 | 94.9 | 91.0 | 87.0 | 87.0 |
| 25° | 755.6 | 563.7 | 271.0 | 136.5 | 108.8 | 94.9 | 85.1 | 79.1 | 75.2 | 73.2 | 71.2 |
| 27.5° | 781.3 | 542.0 | 235.4 | 116.7 | 98.9 | 85.1 | 73.2 | 67.3 | 63.3 | 61.3 | 61.3 |
| 30° | 783.3 | 506.4 | 205.7 | 108.8 | 91.0 | 75.2 | 63.3 | 59.3 | 57.4 | 55.4 | 55.4 |
| 32.5° | 795.2 | 470.8 | 174.1 | 102.9 | 81.1 | 67.3 | 57.4 | 53.4 | 49.5 | 49.5 | 49.5 |
| 35° | 818.9 | 439.1 | 134.5 | 93.0 | 73.2 | 59.3 | 51.4 | 47.5 | 45.5 | 43.5 | 43.5 |
| 37.5° | 856.5 | 417.4 | 110.8 | 85.1 | 67.3 | 53.4 | 47.5 | 43.5 | 41.5 | 39.6 | 39.6 |
| 40° | 905.9 | 405.5 | 100.9 | 77.1 | 59.3 | 49.5 | 43.5 | 39.6 | 35.6 | 33.6 | 33.6 |
| 42.5° | 991.0 | 405.5 | 93.0 | 69.2 | 53.4 | 45.5 | 39.6 | 35.6 | 31.6 | 29.7 | 29.7 |
| 45° | 1089.9 | 421.3 | 87.0 | 61.3 | 47.5 | 41.5 | 35.6 | 29.7 | 25.7 | 23.7 | 23.7 |
| 47.5° | 1198.7 | 451.0 | 81.1 | 55.4 | 43.5 | 37.6 | 31.6 | 23.7 | 19.8 | 17.8 | 17.8 |
| 50° | 1325.3 | 494.5 | 77.1 | 49.5 | 39.6 | 33.6 | 25.7 | 17.8 | 15.8 | 13.8 | 13.8 |
| 52.5° | 1432.1 | 538.0 | 71.2 | 45.5 | 35.6 | 29.7 | 19.8 | 15.8 | 11.9 | 11.9 | 11.9 |
| 55° | 1533.0 | 585.5 | 67.3 | 41.5 | 33.6 | 23.7 | 15.8 | 11.9 | 9.9 | 9.9 | 9.9 |
| 57.5° | 1667.5 | 644.8 | 61.3 | 37.6 | 27.7 | 17.8 | 13.8 | 9.9 | 7.9 | 7.9 | 7.9 |
| 60° | 1942.4 | 777.4 | 53.4 | 33.6 | 23.7 | 15.8 | 11.9 | 9.9 | 7.9 | 5.9 | 5.9 |
| 62.5° | 2389.5 | 993.0 | 45.5 | 29.7 | 17.8 | 13.8 | 9.9 | 7.9 | 5.9 | 4.0 | 4.0 |
| 65° | 2672.3 | 1046.4 | 37.6 | 23.7 | 13.8 | 9.9 | 7.9 | 5.9 | 4.0 | 2.0 | 2.0 |
| 67.5° | 2490.3 | 850.6 | 29.7 | 17.8 | 11.9 | 7.9 | 5.9 | 4.0 | 2.0 | 0.0 | 0.0 |
| 70° | 2102.6 | 642.9 | 21.8 | 11.9 | 9.9 | 5.9 | 4.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 1661.5 | 488.6 | 19.8 | 9.9 | 7.9 | 4.0 | 4.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| 75° | 1089.9 | 251.2 | 15.8 | 9.9 | 5.9 | 4.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 429.2 | 94.9 | 11.9 | 7.9 | 5.9 | 4.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| 80° | 116.7 | 31.6 | 5.9 | 4.0 | 4.0 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 29.7 | 13.8 | 4.0 | 4.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| 85° | 9.9 | 4.0 | 4.0 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 4.0 | 4.0 | 4.0 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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



Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/05/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

Spectral Parameters

| | | | | | |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K): | 3905 | CRI (Ra): | 71.2 | R9: | -29.7 |
| CIE u': | 0.2273 | R1: | 68.9 | R10: | 46.2 |
| CIE v': | 0.5024 | R2: | 77.0 | R11: | 68.8 |
| Duv: | -0.0008 | R3: | 84.0 | R12: | 45.6 |
| CIE x: | 0.3841 | R4: | 71.6 | R13: | 69.5 |
| CIE y: | 0.3774 | R5: | 68.9 | R14: | 90.7 |
| CIE z: | 0.2385 | R6: | 68.3 | | |
| Peak Wavelength (nm): | 443 | R7: | 78.7 | | |
| Dominant Wavelength (nm): | 579 | R8: | 52.2 | | |
| Purity: | 28.7 | | | | |
| Rf: | 71.7 | | | | |
| Rg: | 96.9 | | | | |



Test Conditions

Stabilization Time: 211M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/312%
 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



CCT = 3905K
 CIE x = 0.3841
 CIE y = 0.3774
 Duv = -0.0008

Point lies inside the ANSI 4000K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 2.7 | 620 | 97577 | 25.4 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 4.8 | 625 | 90158 | 19.9 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 8.0 | 630 | 82240 | 14.9 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 13.3 | 635 | 74361 | 11.2 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 20.2 | 640 | 66994 | 8.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 28.5 | 645 | 60405 | 5.8 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 37.4 | 650 | 53806 | 3.9 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 44.9 | 655 | 47610 | 2.7 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 52.6 | 660 | 42018 | 1.8 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 58.4 | 665 | 36742 | 1.2 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.0 | 540 | 96845 | 63.1 | 670 | 32105 | 0.7 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.0 | 545 | 100829 | 67.1 | 675 | 27946 | 0.5 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 0.1 | 550 | 105648 | 71.8 | 680 | 24146 | 0.3 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 0.2 | 555 | 110017 | 75.1 | 685 | 21191 | 0.2 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 0.5 | 560 | 114586 | 77.9 | 690 | 18544 | 0.1 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 1.2 | 565 | 118987 | 79.1 | 695 | 16058 | 0.1 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 2.1 | 570 | 122326 | 79.5 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 2.9 | 575 | 125968 | 78.4 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 2.7 | 580 | 127613 | 75.8 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 2.0 | 585 | 129466 | 71.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 1.5 | 590 | 128813 | 66.6 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 1.3 | 595 | 126387 | 59.9 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 1.0 | 600 | 123477 | 53.2 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 1.1 | 605 | 118718 | 46.0 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 1.2 | 610 | 112091 | 38.5 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 1.7 | 615 | 105039 | 31.7 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8 S/P: 1.47

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 29.3 | 620 | 97577 | 1.2 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 43.0 | 625 | 90158 | 0.8 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 60.8 | 630 | 82240 | 0.5 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 81.1 | 635 | 74361 | 0.3 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 99.6 | 640 | 66994 | 0.2 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 113.9 | 645 | 60405 | 0.1 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 122.6 | 650 | 53806 | 0.1 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 125.0 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 123.1 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.1 | 535 | 94097 | 117.3 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 107.0 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.9 | 545 | 100829 | 96.7 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 3.0 | 550 | 105648 | 86.4 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 9.3 | 555 | 110017 | 75.2 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 23.0 | 560 | 114586 | 64.0 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 45.7 | 565 | 118987 | 53.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 75.5 | 570 | 122326 | 43.2 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 93.8 | 575 | 125968 | 34.3 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 79.3 | 580 | 127613 | 26.3 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 51.3 | 585 | 129466 | 19.8 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 35.6 | 590 | 128813 | 14.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 26.0 | 595 | 126387 | 10.1 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 19.3 | 600 | 123477 | 7.0 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 16.8 | 605 | 118718 | 4.7 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 17.7 | 610 | 112091 | 3.0 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 21.4 | 615 | 105039 | 1.9 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 15.8 | 620 | 97577 | 0.1 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 22.0 | 625 | 90158 | 0.0 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 29.2 | 630 | 82240 | 0.0 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 36.6 | 635 | 74361 | 0.0 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 42.2 | 640 | 66994 | 0.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 44.9 | 645 | 60405 | 0.0 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 44.9 | 650 | 53806 | 0.0 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 42.4 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 38.6 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 33.9 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 28.3 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.6 | 545 | 100829 | 23.4 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 2.1 | 550 | 105648 | 19.0 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 5.9 | 555 | 110017 | 14.8 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 14.3 | 560 | 114586 | 11.3 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 27.3 | 565 | 118987 | 8.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 45.1 | 570 | 122326 | 6.0 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 55.3 | 575 | 125968 | 4.2 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 47.2 | 580 | 127613 | 2.9 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 30.8 | 585 | 129466 | 1.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 21.7 | 590 | 128813 | 1.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 16.1 | 595 | 126387 | 0.8 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 12.0 | 600 | 123477 | 0.5 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 10.3 | 605 | 118718 | 0.3 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 10.5 | 610 | 112091 | 0.2 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 12.1 | 615 | 105039 | 0.1 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

Summary

$R_f = 71.7$
 $R_g = 96.9$
 CIE $R_a = 71.2$
 $R_g = -29.7$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)