

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: P438713

Luminaire Tested: **ISW-SA1E-740-U-SL3-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438713
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-17)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1E-740-U-SL3-HSS
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 4000K, 1050mA LIGHTSQUARE WITH 16 LEDS AND TYPE III SPILL
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5870 lumens
Efficiency: N/A
Efficacy: 100.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

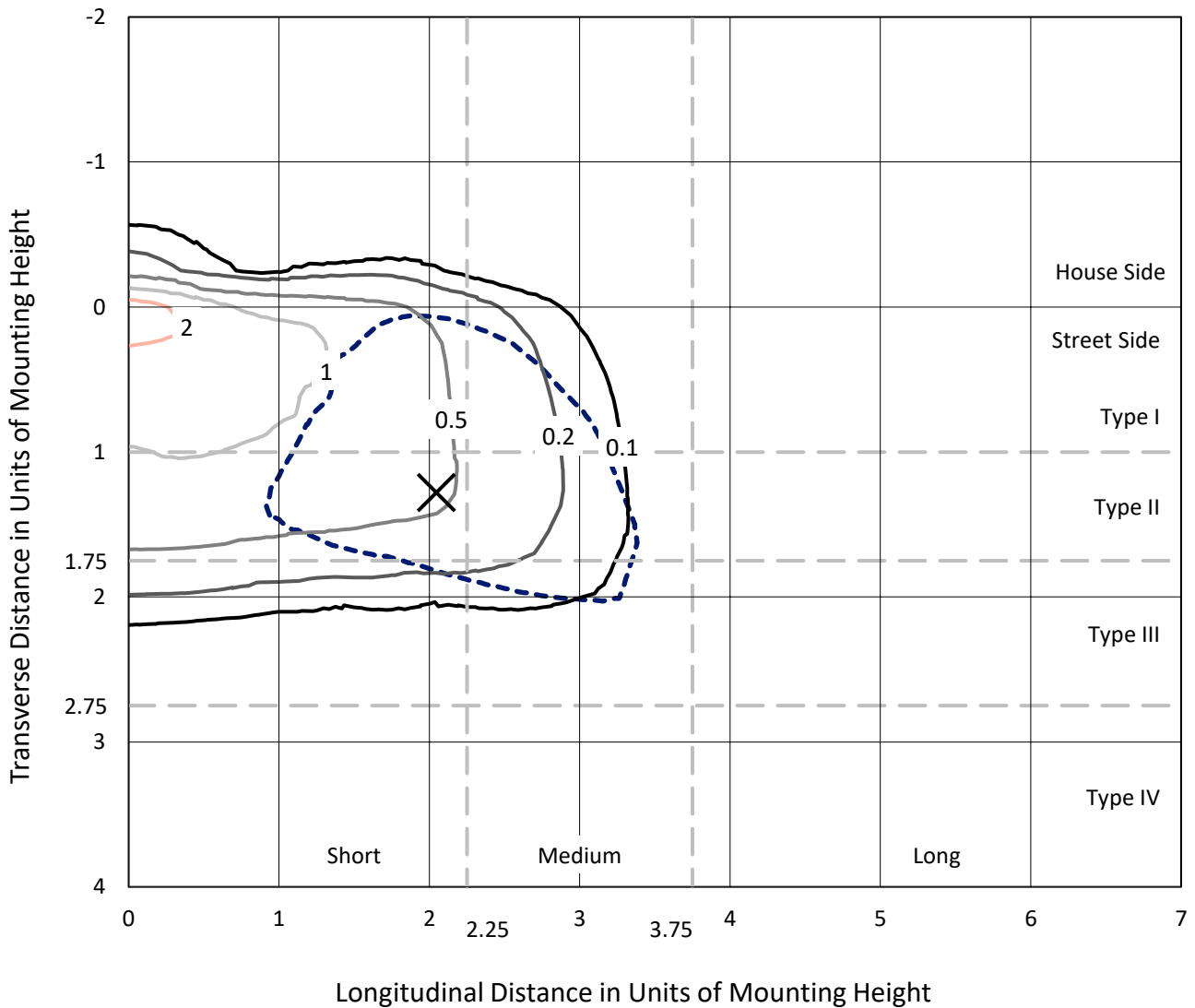
Input Watts (W): 58.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

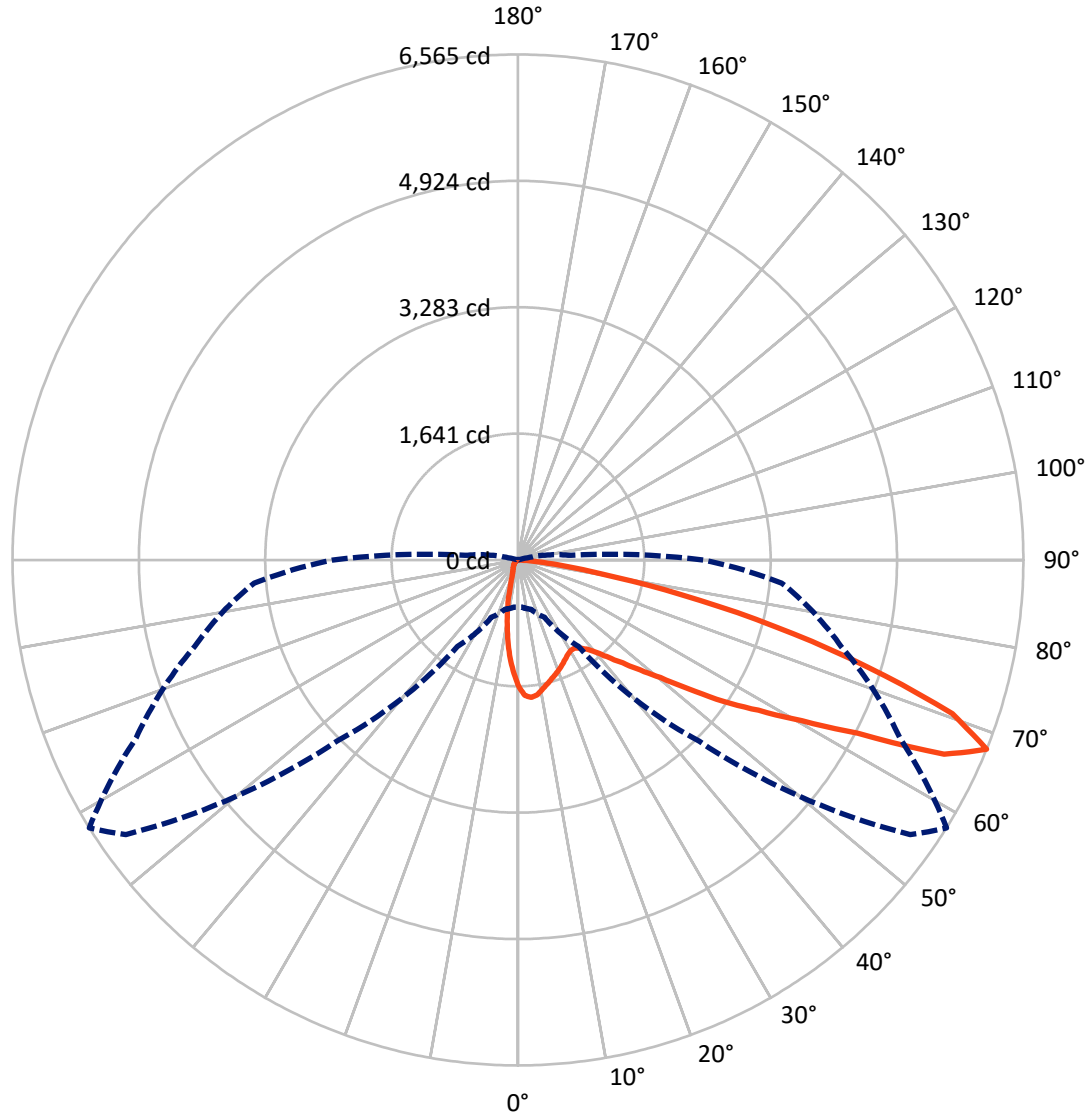
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.7 fc
 Type III - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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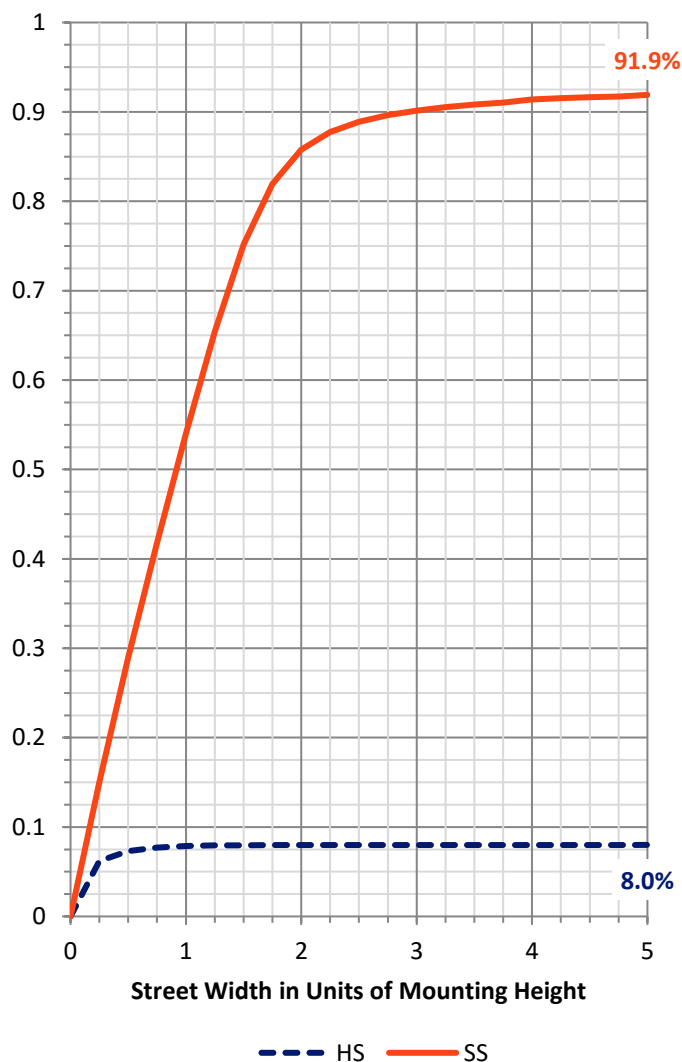
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 473.3 | 0.0 | 473.3 |
| | % Fixture | 8.1 | 0.0 | 8.1 |
| Street Side | Lumens | 5396.7 | 0.0 | 5396.7 |
| | % Fixture | 91.9 | 0.0 | 91.9 |
| Total | Lumens | 5870.0 | 0.0 | 5870.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 132.3 | 2.3 |
| 10°-20° | 278.9 | 4.8 |
| 20°-30° | 377.3 | 6.4 |
| 30°-40° | 518.9 | 8.8 |
| 40°-50° | 812.4 | 13.8 |
| 50°-60° | 1368.7 | 23.3 |
| 60°-70° | 1624.3 | 27.7 |
| 70°-80° | 705.3 | 12.0 |
| 80°-90° | 51.8 | 0.9 |
| 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° | 5870.0 | 100.0 |
| 0°-180° | 5870.0 | 100.0 |

Coefficient of Utilization



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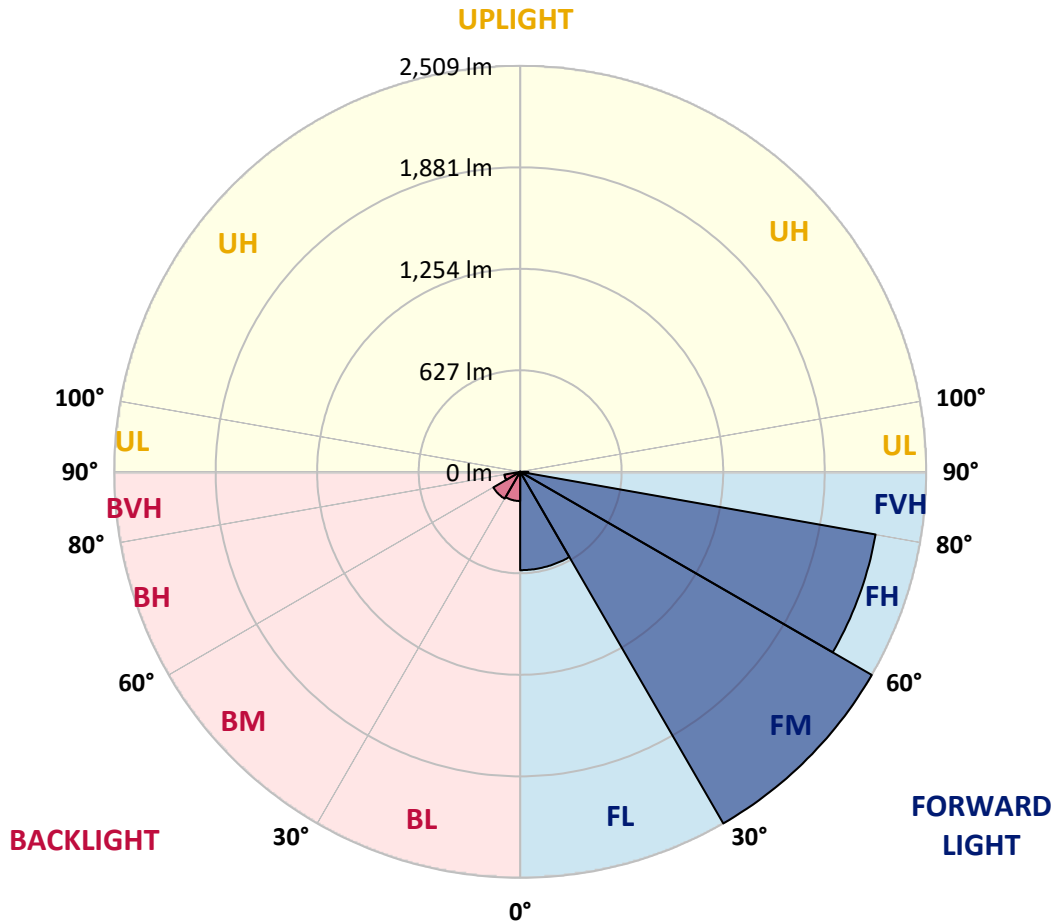
CATALOG NUMBER: ISW-SA1E-740-U-SL3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 607.9 | 10.4 | | | |
| FM (30°-60°) | 2508.6 | 42.7 | | | |
| FH (60°-80°) | 2230.0 | 38.0 | | | G2/5000 |
| FVH (80°-90°) | 50.3 | 0.9 | | | G1/100 |
| BL (0°-30°) | 180.7 | 3.1 | B1/500 | | |
| BM (30°-60°) | 191.4 | 3.3 | B0/220 | | |
| BH (60°-80°) | 99.6 | 1.7 | B0/110 | | G0/110 |
| BVH (80°-90°) | 1.6 | 0.0 | | | 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 III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 |
| 2.5° | 1844.7 | 1834.6 | 1829.6 | 1827.1 | 1809.4 | 1794.2 | 1763.9 | 1761.4 | 1741.1 | 1703.2 | 1665.3 |
| 5° | 1804.3 | 1811.9 | 1814.4 | 1822.0 | 1819.5 | 1819.5 | 1799.3 | 1794.2 | 1766.4 | 1713.3 | 1640.1 |
| 7.5° | 1715.9 | 1713.3 | 1718.4 | 1738.6 | 1748.7 | 1768.9 | 1766.4 | 1771.5 | 1758.8 | 1700.7 | 1597.1 |
| 10° | 1587.0 | 1592.0 | 1607.2 | 1624.9 | 1652.7 | 1688.1 | 1710.8 | 1715.9 | 1726.0 | 1678.0 | 1556.7 |
| 12.5° | 1468.2 | 1475.8 | 1485.9 | 1521.3 | 1551.6 | 1607.2 | 1650.2 | 1660.3 | 1680.5 | 1655.2 | 1521.3 |
| 15° | 1369.7 | 1372.2 | 1379.8 | 1412.6 | 1463.2 | 1533.9 | 1597.1 | 1612.3 | 1645.1 | 1635.0 | 1493.5 |
| 17.5° | 1291.3 | 1293.9 | 1304.0 | 1331.8 | 1372.2 | 1455.6 | 1541.5 | 1566.8 | 1614.8 | 1622.4 | 1463.2 |
| 20° | 1248.4 | 1248.4 | 1248.4 | 1266.1 | 1306.5 | 1384.8 | 1485.9 | 1521.3 | 1589.5 | 1602.2 | 1437.9 |
| 22.5° | 1235.7 | 1235.7 | 1230.7 | 1235.7 | 1261.0 | 1326.7 | 1430.3 | 1473.3 | 1559.2 | 1594.6 | 1407.6 |
| 25° | 1253.4 | 1245.8 | 1245.8 | 1233.2 | 1235.7 | 1278.7 | 1379.8 | 1427.8 | 1541.5 | 1589.5 | 1392.4 |
| 27.5° | 1286.3 | 1283.7 | 1273.6 | 1263.5 | 1248.4 | 1258.5 | 1336.8 | 1384.8 | 1523.8 | 1597.1 | 1379.8 |
| 30° | 1324.2 | 1324.2 | 1319.1 | 1314.1 | 1288.8 | 1268.6 | 1316.6 | 1359.6 | 1516.2 | 1609.7 | 1372.2 |
| 32.5° | 1367.1 | 1364.6 | 1377.2 | 1382.3 | 1352.0 | 1314.1 | 1321.6 | 1362.1 | 1521.3 | 1647.6 | 1377.2 |
| 35° | 1417.7 | 1417.7 | 1440.4 | 1470.7 | 1445.5 | 1387.4 | 1369.7 | 1405.0 | 1546.6 | 1688.1 | 1397.5 |
| 37.5° | 1473.3 | 1475.8 | 1516.2 | 1559.2 | 1541.5 | 1491.0 | 1460.6 | 1473.3 | 1599.6 | 1763.9 | 1442.9 |
| 40° | 1539.0 | 1539.0 | 1599.6 | 1670.4 | 1670.4 | 1612.3 | 1571.8 | 1581.9 | 1675.4 | 1872.5 | 1523.8 |
| 42.5° | 1609.7 | 1617.3 | 1703.2 | 1789.2 | 1814.4 | 1761.4 | 1718.4 | 1731.0 | 1796.7 | 2014.1 | 1642.6 |
| 45° | 1710.8 | 1733.6 | 1844.7 | 1928.1 | 1978.7 | 1953.4 | 1897.8 | 1907.9 | 1955.9 | 2218.8 | 1822.0 |
| 47.5° | 1890.2 | 1910.5 | 2006.5 | 2089.9 | 2153.1 | 2165.7 | 2140.4 | 2135.4 | 2155.6 | 2458.8 | 2049.4 |
| 50° | 2105.0 | 2122.7 | 2188.4 | 2259.2 | 2347.6 | 2423.4 | 2408.3 | 2400.7 | 2408.3 | 2721.6 | 2327.4 |
| 52.5° | 2317.3 | 2309.7 | 2388.1 | 2426.0 | 2549.8 | 2716.6 | 2782.3 | 2782.3 | 2741.9 | 2997.1 | 2600.3 |
| 55° | 2506.8 | 2539.7 | 2623.1 | 2691.3 | 2794.9 | 2994.6 | 3216.9 | 3244.7 | 3105.7 | 3270.0 | 2827.8 |
| 57.5° | 2484.1 | 2516.9 | 2671.1 | 2885.9 | 3191.7 | 3462.1 | 3679.4 | 3684.4 | 3482.3 | 3479.8 | 3108.3 |
| 60° | 2218.8 | 2221.3 | 2428.5 | 2754.5 | 3366.0 | 4136.8 | 4263.1 | 4237.9 | 3810.8 | 3772.9 | 3494.9 |
| 62.5° | 1561.7 | 1551.6 | 1819.5 | 2233.9 | 3105.7 | 4505.7 | 5147.6 | 4955.6 | 4356.6 | 4232.8 | 3856.3 |
| 65° | 909.7 | 904.7 | 1008.3 | 1334.3 | 2352.7 | 4245.5 | 6052.3 | 6082.6 | 5074.3 | 4467.8 | 3780.5 |
| 67.5° | 611.5 | 616.6 | 664.6 | 823.8 | 1372.2 | 3330.7 | 6219.1 | 6565.3 | 5473.6 | 4346.5 | 3439.3 |
| 70° | 449.8 | 449.8 | 487.7 | 606.5 | 813.7 | 2087.3 | 5433.2 | 5986.6 | 5551.9 | 4043.3 | 2878.3 |
| 72.5° | 320.9 | 320.9 | 374.0 | 490.2 | 664.6 | 1076.5 | 4038.2 | 4745.8 | 4687.7 | 3355.9 | 1991.3 |
| 75° | 204.7 | 209.7 | 267.9 | 401.8 | 606.5 | 689.9 | 2739.3 | 3439.3 | 3270.0 | 1877.6 | 849.1 |
| 77.5° | 78.3 | 88.4 | 144.0 | 295.7 | 530.7 | 573.6 | 1561.7 | 2168.2 | 1726.0 | 657.0 | 227.4 |
| 80° | 27.8 | 27.8 | 48.0 | 151.6 | 374.0 | 472.6 | 816.2 | 1076.5 | 561.0 | 159.2 | 85.9 |
| 82.5° | 5.1 | 5.1 | 17.7 | 63.2 | 184.5 | 328.5 | 475.1 | 530.7 | 219.9 | 53.1 | 50.5 |
| 85° | 0.0 | 0.0 | 2.5 | 12.6 | 43.0 | 32.9 | 189.5 | 179.4 | 68.2 | 22.7 | 32.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 2.5 | 5.1 | 5.1 | 5.1 | 5.1 | 5.1 |
| 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° | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 | 1652.7 |
| 2.5° | 1635.0 | 1614.8 | 1556.7 | 1516.2 | 1460.6 | 1405.0 | 1369.7 | 1341.9 | 1329.2 | 1311.5 | 1319.1 |
| 5° | 1594.6 | 1549.1 | 1442.9 | 1346.9 | 1255.9 | 1159.9 | 1089.2 | 1026.0 | 1005.8 | 970.4 | 965.3 |
| 7.5° | 1533.9 | 1470.7 | 1314.1 | 1162.4 | 1015.9 | 894.6 | 785.9 | 702.5 | 626.7 | 593.9 | 614.1 |
| 10° | 1475.8 | 1389.9 | 1185.2 | 983.0 | 788.4 | 619.1 | 490.2 | 389.2 | 331.0 | 305.8 | 310.8 |
| 12.5° | 1420.2 | 1311.5 | 1051.3 | 811.2 | 573.6 | 381.6 | 278.0 | 224.9 | 207.2 | 204.7 | 199.6 |
| 15° | 1372.2 | 1238.3 | 932.5 | 629.2 | 381.6 | 240.1 | 197.1 | 184.5 | 181.9 | 181.9 | 181.9 |
| 17.5° | 1319.1 | 1162.4 | 803.6 | 462.5 | 250.2 | 187.0 | 174.4 | 171.8 | 169.3 | 169.3 | 169.3 |
| 20° | 1278.7 | 1096.7 | 684.8 | 323.5 | 192.1 | 166.8 | 161.7 | 161.7 | 159.2 | 159.2 | 159.2 |
| 22.5° | 1235.7 | 1028.5 | 568.6 | 237.5 | 164.3 | 154.2 | 149.1 | 146.6 | 146.6 | 144.0 | 144.0 |
| 25° | 1195.3 | 965.3 | 457.4 | 181.9 | 146.6 | 139.0 | 133.9 | 131.4 | 131.4 | 128.9 | 126.4 |
| 27.5° | 1170.0 | 914.8 | 358.8 | 154.2 | 131.4 | 126.4 | 121.3 | 116.2 | 111.2 | 108.7 | 108.7 |
| 30° | 1152.3 | 854.1 | 272.9 | 133.9 | 121.3 | 113.7 | 106.1 | 98.6 | 91.0 | 88.4 | 88.4 |
| 32.5° | 1127.1 | 806.1 | 209.7 | 121.3 | 108.7 | 101.1 | 91.0 | 83.4 | 75.8 | 70.8 | 70.8 |
| 35° | 1127.1 | 765.7 | 161.7 | 108.7 | 98.6 | 88.4 | 80.9 | 68.2 | 60.6 | 58.1 | 55.6 |
| 37.5° | 1144.8 | 720.2 | 133.9 | 101.1 | 91.0 | 80.9 | 70.8 | 58.1 | 50.5 | 48.0 | 48.0 |
| 40° | 1185.2 | 705.0 | 113.7 | 91.0 | 80.9 | 70.8 | 60.6 | 48.0 | 43.0 | 37.9 | 37.9 |
| 42.5° | 1268.6 | 710.1 | 101.1 | 85.9 | 73.3 | 63.2 | 50.5 | 40.4 | 35.4 | 32.9 | 32.9 |
| 45° | 1389.9 | 725.3 | 93.5 | 78.3 | 65.7 | 53.1 | 43.0 | 35.4 | 27.8 | 25.3 | 25.3 |
| 47.5° | 1559.2 | 773.3 | 83.4 | 70.8 | 58.1 | 45.5 | 35.4 | 27.8 | 22.7 | 20.2 | 20.2 |
| 50° | 1761.4 | 856.7 | 78.3 | 63.2 | 53.1 | 37.9 | 27.8 | 20.2 | 15.2 | 15.2 | 15.2 |
| 52.5° | 1998.9 | 940.1 | 70.8 | 58.1 | 45.5 | 32.9 | 22.7 | 15.2 | 12.6 | 10.1 | 10.1 |
| 55° | 2198.5 | 1013.3 | 63.2 | 53.1 | 37.9 | 25.3 | 17.7 | 12.6 | 10.1 | 7.6 | 7.6 |
| 57.5° | 2458.8 | 1119.5 | 53.1 | 45.5 | 30.3 | 20.2 | 12.6 | 10.1 | 5.1 | 5.1 | 5.1 |
| 60° | 2807.6 | 1245.8 | 45.5 | 37.9 | 22.7 | 15.2 | 10.1 | 5.1 | 5.1 | 2.5 | 2.5 |
| 62.5° | 2956.7 | 1144.8 | 40.4 | 30.3 | 17.7 | 10.1 | 7.6 | 5.1 | 2.5 | 2.5 | 2.5 |
| 65° | 2792.4 | 935.0 | 32.9 | 22.7 | 12.6 | 7.6 | 5.1 | 2.5 | 2.5 | 0.0 | 0.0 |
| 67.5° | 2408.3 | 689.9 | 27.8 | 15.2 | 10.1 | 5.1 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 70° | 1963.5 | 510.5 | 20.2 | 10.1 | 5.1 | 5.1 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 1359.6 | 308.3 | 15.2 | 7.6 | 5.1 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 528.2 | 121.3 | 12.6 | 7.6 | 5.1 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 149.1 | 43.0 | 10.1 | 5.1 | 5.1 | 2.5 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 |
| 80° | 60.6 | 22.7 | 7.6 | 5.1 | 5.1 | 5.1 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 |
| 82.5° | 37.9 | 12.6 | 5.1 | 2.5 | 2.5 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 25.3 | 7.6 | 5.1 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 2.5 |
| 87.5° | 5.1 | 5.1 | 2.5 | 2.5 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 |
| 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

REPORT NUMBER: SP1-2101-121-2

| 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 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)