

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: P437935

Luminaire Tested: **ISC-SA1F-830-U-SL3**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437935
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-16)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: ISC-SA1F-830-U-SL3
Description: IMPACT ELITE LED CYLINDER LUMINAIRE
(1) 80 CRI, 3000K, 1200mA LIGHTSQUARE WITH 16 LEDS AND TYPE III SPILL
LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6146 lumens
Efficiency: N/A
Efficacy: 93.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

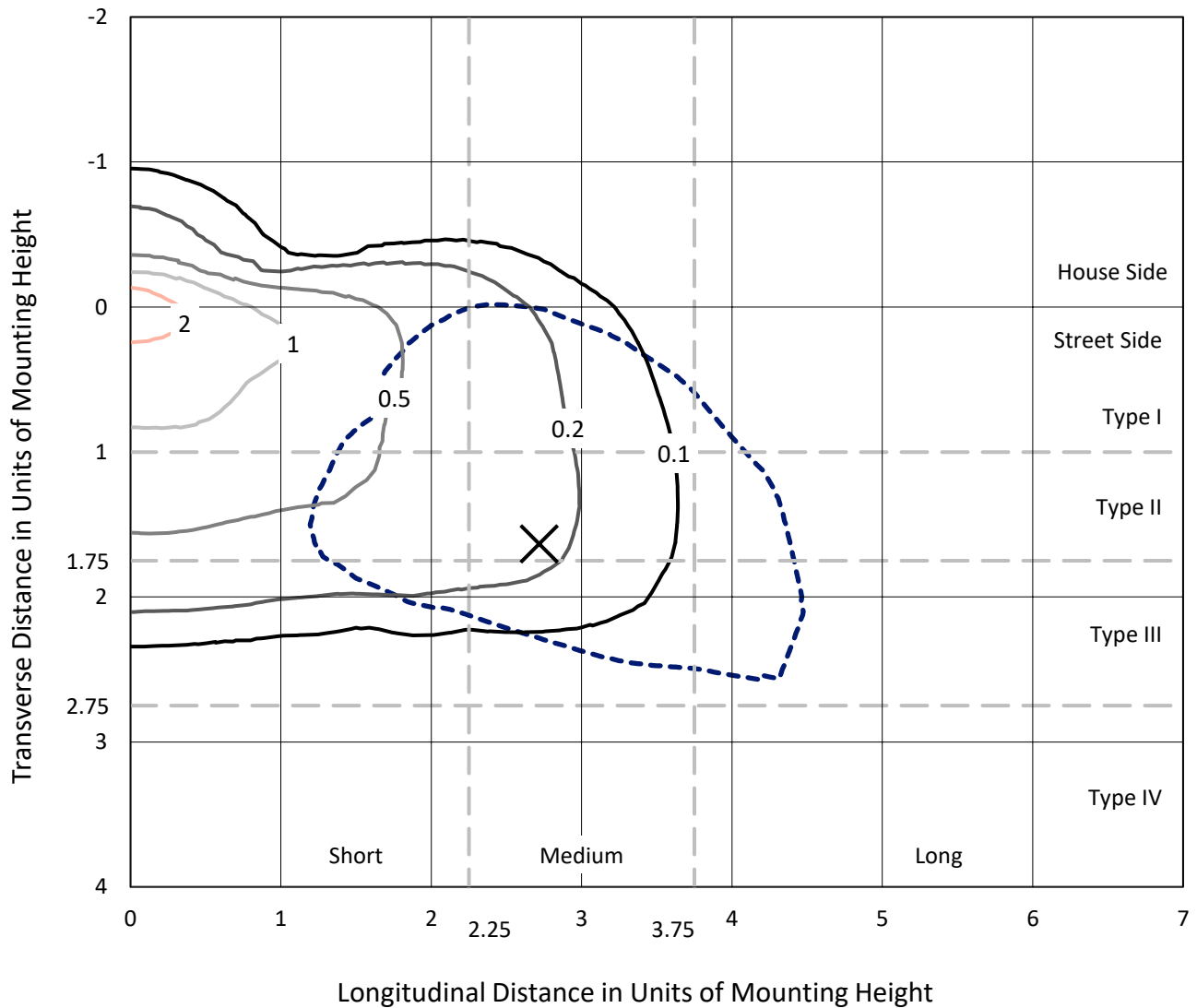
Input Watts (W): 66
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

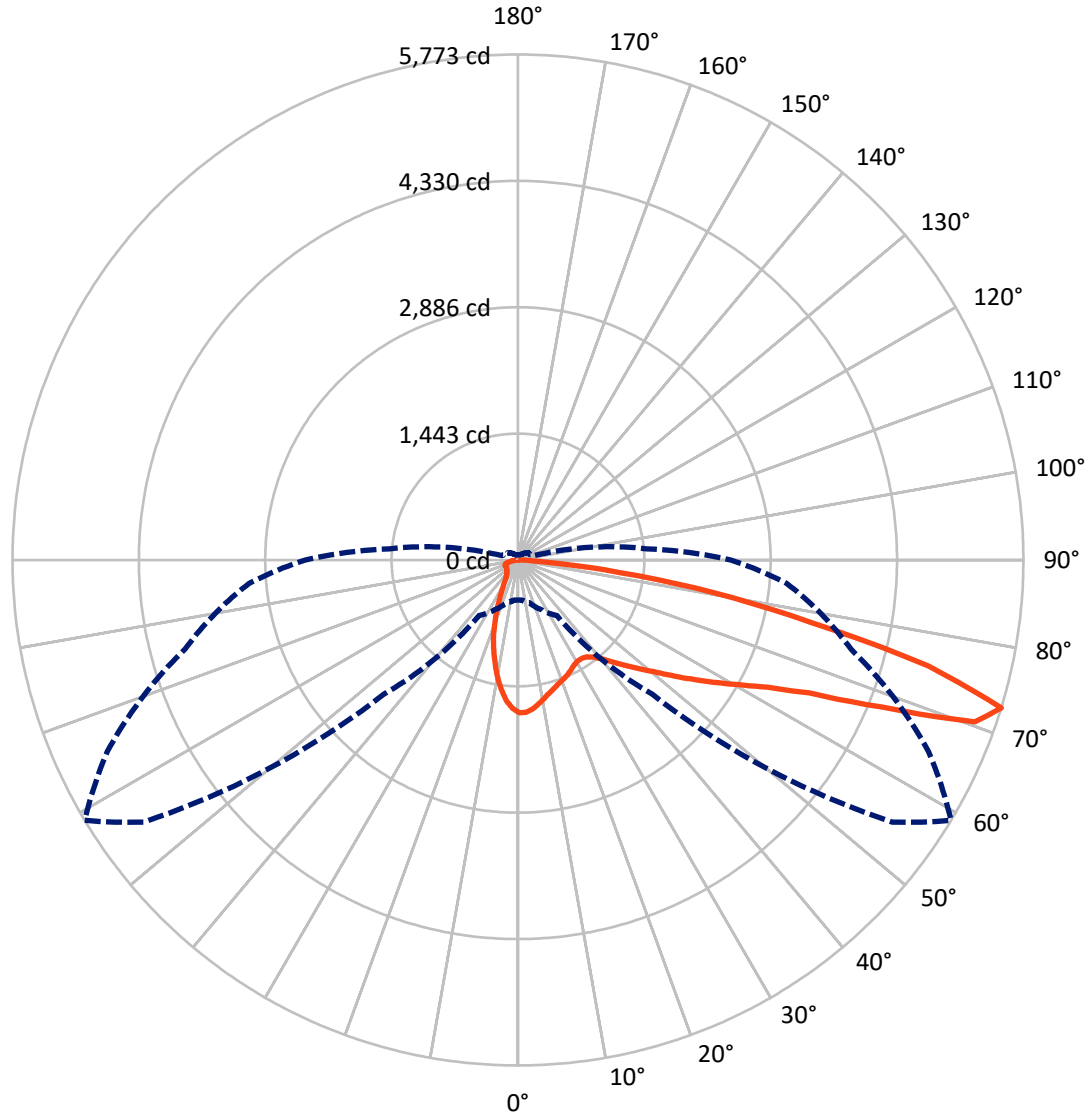
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.8 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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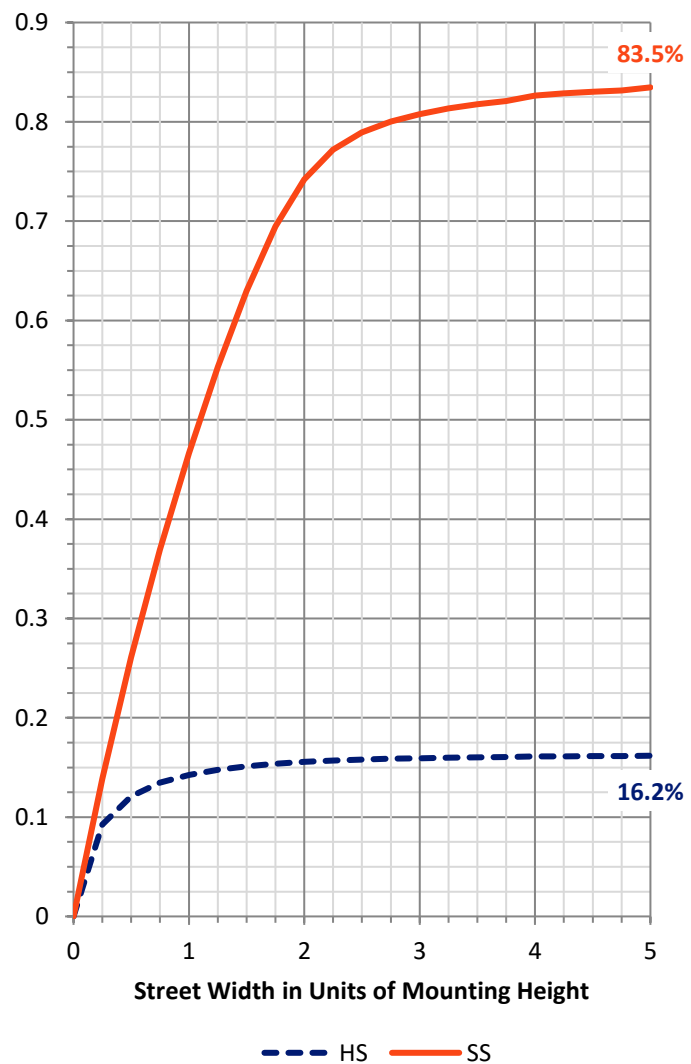
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1003.2 | 0.0 | 1003.2 |
| | % Fixture | 16.3 | 0.0 | 16.3 |
| Street Side | Lumens | 5142.8 | 0.0 | 5142.8 |
| | % Fixture | 83.7 | 0.0 | 83.7 |
| Total | Lumens | 6146.0 | 0.0 | 6146.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 149.7 | 2.4 |
| 10°-20° | 336.4 | 5.5 |
| 20°-30° | 433.4 | 7.1 |
| 30°-40° | 554.5 | 9.0 |
| 40°-50° | 769.5 | 12.5 |
| 50°-60° | 1134.2 | 18.5 |
| 60°-70° | 1526.1 | 24.8 |
| 70°-80° | 1110.2 | 18.1 |
| 80°-90° | 132.0 | 2.1 |
| 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° | 6146.0 | 100.0 |
| 0°-180° | 6146.0 | 100.0 |

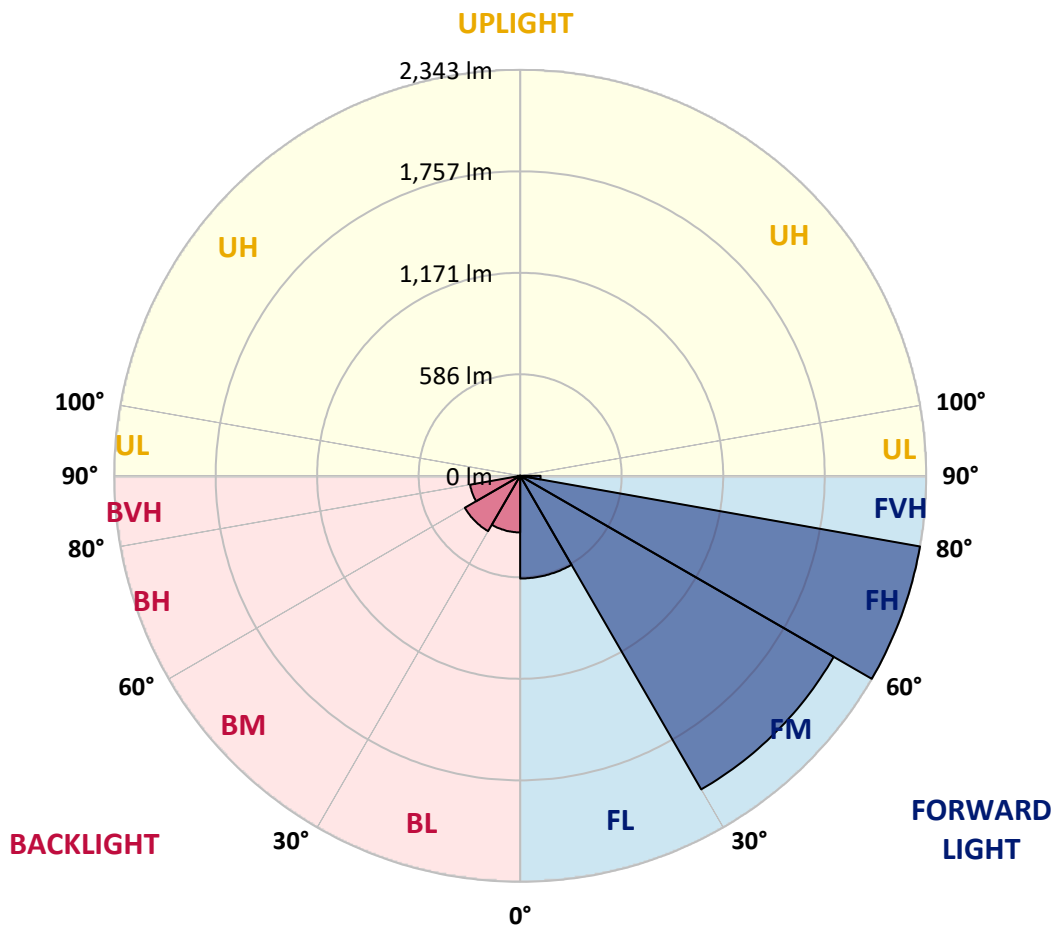


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 592.8 | 9.6 | | | |
| FM (30°-60°) | 2089.4 | 34.0 | | | |
| FH (60°-80°) | 2342.8 | 38.1 | | | G2/5000 |
| FVH (80°-90°) | 117.8 | 1.9 | | | G2/225 |
| BL (0°-30°) | 326.7 | 5.3 | B1/500 | | |
| BM (30°-60°) | 368.8 | 6.0 | B1/1000 | | |
| BH (60°-80°) | 293.4 | 4.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 14.2 | 0.2 | | | G1/100 |
| 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 Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 |
| 2.5° | 1735.4 | 1735.4 | 1742.1 | 1746.6 | 1739.9 | 1746.6 | 1744.3 | 1742.1 | 1744.3 | 1744.3 | 1739.9 |
| 5° | 1663.7 | 1672.7 | 1672.7 | 1674.9 | 1690.6 | 1701.8 | 1706.3 | 1710.8 | 1713.0 | 1715.2 | 1710.8 |
| 7.5° | 1576.4 | 1580.9 | 1585.4 | 1605.5 | 1614.5 | 1639.1 | 1654.8 | 1663.7 | 1672.7 | 1677.2 | 1663.7 |
| 10° | 1480.1 | 1486.8 | 1500.3 | 1515.9 | 1538.3 | 1571.9 | 1598.8 | 1614.5 | 1627.9 | 1634.6 | 1618.9 |
| 12.5° | 1399.5 | 1401.7 | 1415.2 | 1439.8 | 1466.7 | 1513.7 | 1547.3 | 1565.2 | 1583.1 | 1596.6 | 1578.6 |
| 15° | 1325.6 | 1327.8 | 1339.0 | 1368.2 | 1399.5 | 1451.0 | 1500.3 | 1527.1 | 1551.8 | 1574.2 | 1549.5 |
| 17.5° | 1267.4 | 1274.1 | 1278.6 | 1303.2 | 1341.3 | 1397.3 | 1462.2 | 1489.1 | 1527.1 | 1560.7 | 1529.4 |
| 20° | 1233.8 | 1231.6 | 1233.8 | 1249.5 | 1289.8 | 1345.8 | 1421.9 | 1460.0 | 1504.7 | 1551.8 | 1509.2 |
| 22.5° | 1213.6 | 1218.1 | 1215.9 | 1222.6 | 1247.2 | 1303.2 | 1379.3 | 1433.1 | 1484.6 | 1545.1 | 1491.3 |
| 25° | 1213.6 | 1220.4 | 1218.1 | 1215.9 | 1224.8 | 1262.9 | 1343.5 | 1397.3 | 1462.2 | 1545.1 | 1471.2 |
| 27.5° | 1236.0 | 1238.3 | 1233.8 | 1227.1 | 1227.1 | 1240.5 | 1312.2 | 1361.4 | 1451.0 | 1542.8 | 1460.0 |
| 30° | 1256.2 | 1260.7 | 1260.7 | 1256.2 | 1249.5 | 1242.8 | 1289.8 | 1341.3 | 1439.8 | 1556.2 | 1451.0 |
| 32.5° | 1283.1 | 1287.5 | 1296.5 | 1301.0 | 1292.0 | 1271.9 | 1296.5 | 1339.0 | 1442.0 | 1585.4 | 1453.2 |
| 35° | 1316.7 | 1321.1 | 1334.6 | 1357.0 | 1350.2 | 1316.7 | 1321.1 | 1359.2 | 1460.0 | 1616.7 | 1462.2 |
| 37.5° | 1343.5 | 1350.2 | 1379.3 | 1417.4 | 1419.7 | 1383.8 | 1381.6 | 1408.5 | 1493.5 | 1666.0 | 1493.5 |
| 40° | 1370.4 | 1379.3 | 1421.9 | 1484.6 | 1498.0 | 1477.9 | 1464.4 | 1484.6 | 1554.0 | 1737.6 | 1545.1 |
| 42.5° | 1406.2 | 1415.2 | 1471.2 | 1549.5 | 1583.1 | 1574.2 | 1565.2 | 1594.3 | 1645.8 | 1833.9 | 1625.7 |
| 45° | 1444.3 | 1462.2 | 1533.9 | 1621.2 | 1681.6 | 1688.4 | 1697.3 | 1715.2 | 1755.5 | 1968.3 | 1739.9 |
| 47.5° | 1513.7 | 1529.4 | 1612.2 | 1701.8 | 1780.2 | 1816.0 | 1831.7 | 1854.1 | 1878.7 | 2091.4 | 1878.7 |
| 50° | 1607.7 | 1639.1 | 1713.0 | 1800.3 | 1892.1 | 1961.5 | 2001.8 | 2001.8 | 2028.7 | 2239.2 | 2031.0 |
| 52.5° | 1748.8 | 1777.9 | 1822.7 | 1905.6 | 2015.3 | 2125.0 | 2181.0 | 2189.9 | 2181.0 | 2380.3 | 2185.5 |
| 55° | 1867.5 | 1896.6 | 1939.2 | 1999.6 | 2138.4 | 2308.6 | 2404.9 | 2398.2 | 2366.8 | 2530.3 | 2337.7 |
| 57.5° | 1999.6 | 2022.0 | 2060.1 | 2109.3 | 2263.8 | 2499.0 | 2640.0 | 2633.3 | 2575.1 | 2682.6 | 2503.4 |
| 60° | 2055.6 | 2086.9 | 2156.4 | 2257.1 | 2458.6 | 2743.0 | 2908.7 | 2888.6 | 2758.7 | 2846.0 | 2651.2 |
| 62.5° | 1887.6 | 1945.9 | 2086.9 | 2290.7 | 2684.8 | 3150.6 | 3260.3 | 3195.3 | 3018.4 | 3025.2 | 2850.5 |
| 65° | 1509.2 | 1477.9 | 1692.8 | 2031.0 | 2702.7 | 3654.4 | 3797.7 | 3656.6 | 3343.1 | 3253.6 | 3076.7 |
| 67.5° | 862.1 | 875.5 | 978.5 | 1343.5 | 2225.8 | 3860.4 | 4729.2 | 4480.6 | 3851.4 | 3609.6 | 3349.8 |
| 70° | 584.4 | 597.9 | 642.7 | 797.2 | 1278.6 | 3450.6 | 5488.3 | 5537.6 | 4637.4 | 3925.3 | 3358.8 |
| 72.5° | 456.8 | 459.0 | 506.1 | 627.0 | 774.8 | 2167.5 | 5217.3 | 5772.7 | 5174.8 | 3936.5 | 3081.1 |
| 75° | 349.3 | 351.6 | 394.1 | 535.2 | 696.4 | 1050.2 | 3972.3 | 4841.2 | 4854.6 | 3620.8 | 2516.9 |
| 77.5° | 221.7 | 232.9 | 282.1 | 427.7 | 653.8 | 696.4 | 2530.3 | 3410.3 | 3499.9 | 2682.6 | 1316.7 |
| 80° | 107.5 | 112.0 | 141.1 | 273.2 | 575.5 | 615.8 | 1507.0 | 2268.3 | 1966.0 | 1045.7 | 400.8 |
| 82.5° | 44.8 | 47.0 | 67.2 | 118.7 | 367.2 | 521.7 | 754.6 | 1166.6 | 759.1 | 284.4 | 129.9 |
| 85° | 9.0 | 11.2 | 15.7 | 29.1 | 118.7 | 255.3 | 309.0 | 302.3 | 183.6 | 87.3 | 49.3 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.2 | 2.2 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P437935
 CATALOG NUMBER: ISC-SA1F-830-U-SL3

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 | 1744.3 |
| 2.5° | 1737.6 | 1737.6 | 1719.7 | 1706.3 | 1690.6 | 1679.4 | 1668.2 | 1654.8 | 1652.5 | 1659.3 | 1666.0 |
| 5° | 1701.8 | 1692.8 | 1663.7 | 1636.9 | 1605.5 | 1569.7 | 1547.3 | 1518.2 | 1502.5 | 1509.2 | 1504.7 |
| 7.5° | 1654.8 | 1641.3 | 1587.6 | 1542.8 | 1480.1 | 1424.1 | 1386.1 | 1343.5 | 1314.4 | 1303.2 | 1296.5 |
| 10° | 1605.5 | 1578.6 | 1507.0 | 1426.4 | 1343.5 | 1260.7 | 1191.3 | 1124.1 | 1090.5 | 1088.3 | 1052.4 |
| 12.5° | 1558.5 | 1522.7 | 1421.9 | 1305.5 | 1191.3 | 1079.3 | 976.3 | 902.4 | 810.6 | 783.7 | 792.7 |
| 15° | 1520.4 | 1471.2 | 1330.1 | 1182.3 | 1034.5 | 893.4 | 759.1 | 649.4 | 568.8 | 539.6 | 528.5 |
| 17.5° | 1484.6 | 1415.2 | 1245.0 | 1068.1 | 882.2 | 705.3 | 541.9 | 459.0 | 409.8 | 391.9 | 391.9 |
| 20° | 1444.3 | 1363.7 | 1153.2 | 940.5 | 714.3 | 524.0 | 400.8 | 360.5 | 344.8 | 342.6 | 340.4 |
| 22.5° | 1412.9 | 1312.2 | 1059.1 | 806.1 | 557.6 | 398.6 | 331.4 | 313.5 | 313.5 | 315.7 | 315.7 |
| 25° | 1374.9 | 1254.0 | 958.4 | 662.8 | 429.9 | 320.2 | 293.3 | 286.6 | 293.3 | 300.1 | 300.1 |
| 27.5° | 1348.0 | 1202.5 | 866.6 | 528.5 | 333.6 | 277.7 | 264.2 | 266.5 | 275.4 | 284.4 | 284.4 |
| 30° | 1325.6 | 1153.2 | 770.3 | 416.5 | 277.7 | 246.3 | 244.1 | 248.6 | 257.5 | 266.5 | 264.2 |
| 32.5° | 1303.2 | 1115.1 | 665.0 | 329.2 | 239.6 | 226.2 | 223.9 | 230.6 | 237.4 | 239.6 | 244.1 |
| 35° | 1294.3 | 1083.8 | 559.8 | 270.9 | 217.2 | 210.5 | 210.5 | 212.7 | 215.0 | 217.2 | 217.2 |
| 37.5° | 1301.0 | 1059.1 | 465.8 | 230.6 | 203.8 | 201.5 | 199.3 | 197.0 | 197.0 | 197.0 | 199.3 |
| 40° | 1327.8 | 1050.2 | 385.1 | 208.2 | 192.6 | 192.6 | 188.1 | 181.4 | 179.1 | 181.4 | 179.1 |
| 42.5° | 1381.6 | 1068.1 | 318.0 | 194.8 | 183.6 | 181.4 | 174.7 | 170.2 | 167.9 | 167.9 | 165.7 |
| 45° | 1466.7 | 1099.4 | 273.2 | 185.9 | 176.9 | 170.2 | 163.5 | 159.0 | 156.7 | 159.0 | 159.0 |
| 47.5° | 1578.6 | 1157.7 | 241.8 | 176.9 | 170.2 | 159.0 | 150.0 | 147.8 | 147.8 | 152.3 | 152.3 |
| 50° | 1713.0 | 1236.0 | 223.9 | 172.4 | 163.5 | 150.0 | 141.1 | 138.8 | 141.1 | 145.5 | 147.8 |
| 52.5° | 1856.3 | 1334.6 | 219.4 | 170.2 | 156.7 | 141.1 | 134.4 | 132.1 | 134.4 | 138.8 | 141.1 |
| 55° | 1999.6 | 1442.0 | 230.6 | 170.2 | 150.0 | 134.4 | 129.9 | 123.2 | 125.4 | 129.9 | 132.1 |
| 57.5° | 2151.9 | 1558.5 | 264.2 | 165.7 | 145.5 | 129.9 | 123.2 | 116.4 | 116.4 | 120.9 | 120.9 |
| 60° | 2315.3 | 1690.6 | 326.9 | 165.7 | 141.1 | 125.4 | 114.2 | 107.5 | 107.5 | 107.5 | 109.7 |
| 62.5° | 2496.7 | 1849.6 | 400.8 | 167.9 | 143.3 | 120.9 | 105.2 | 96.3 | 96.3 | 98.5 | 96.3 |
| 65° | 2765.4 | 2086.9 | 421.0 | 170.2 | 147.8 | 116.4 | 98.5 | 89.6 | 87.3 | 87.3 | 87.3 |
| 67.5° | 2931.1 | 2113.8 | 326.9 | 165.7 | 154.5 | 116.4 | 91.8 | 80.6 | 78.4 | 76.1 | 76.1 |
| 70° | 2810.2 | 1856.3 | 232.9 | 159.0 | 154.5 | 116.4 | 87.3 | 73.9 | 69.4 | 64.9 | 64.9 |
| 72.5° | 2431.8 | 1473.4 | 190.3 | 150.0 | 143.3 | 109.7 | 80.6 | 67.2 | 60.5 | 56.0 | 56.0 |
| 75° | 1948.1 | 1045.7 | 161.2 | 138.8 | 120.9 | 87.3 | 67.2 | 56.0 | 51.5 | 49.3 | 49.3 |
| 77.5° | 949.4 | 515.0 | 125.4 | 120.9 | 96.3 | 64.9 | 53.7 | 47.0 | 44.8 | 40.3 | 40.3 |
| 80° | 277.7 | 190.3 | 94.0 | 96.3 | 60.5 | 44.8 | 40.3 | 38.1 | 35.8 | 31.3 | 33.6 |
| 82.5° | 127.6 | 107.5 | 67.2 | 60.5 | 38.1 | 26.9 | 26.9 | 24.6 | 22.4 | 20.2 | 20.2 |
| 85° | 51.5 | 53.7 | 35.8 | 29.1 | 17.9 | 13.4 | 11.2 | 11.2 | 9.0 | 9.0 | 9.0 |
| 87.5° | 4.5 | 6.7 | 6.7 | 4.5 | 4.5 | 2.2 | 0.0 | 0.0 | 0.0 | 2.2 | 2.2 |
| 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



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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2408-195-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **GALN-SB1A-830-U-5WQ**
 Description: GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K): 3050
 CIE u': 0.2476
 CIE v': 0.5251
 Duv: 0.0034
 CIE x: 0.4383
 CIE y: 0.4131
 CIE z: 0.1487
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 581
 Purity: 55.55201
 Rf: 81.5
 Rg: 99.2

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 81.0 | | |
| R1: | 79.6 | R9: | 7.1 |
| R2: | 85.6 | R10: | 67.0 |
| R3: | 92.0 | R11: | 82.7 |
| R4: | 82.6 | R12: | 63.2 |
| R5: | 78.9 | R13: | 80.3 |
| R6: | 81.7 | R14: | 95.0 |
| R7: | 85.2 | R15: | 71.7 |
| R8: | 62.0 | | |



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

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| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

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CIE 1931 Chromaticity Diagram



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



CCT = 3050K
 CIE x = 0.4383
 CIE y = 0.4131
 Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 81.5$
 $R_g = 99.2$
 $CIE R_a = 81.0$
 $R_9 = 7.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)