

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: P437563

Luminaire Tested: **ISC-SA1D-760-U-T2**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437563
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISC-SA1D-760-U-T2
Description: IMPACT ELITE LED CYLINDER LUMINAIRE
(1) 70 CRI, 5700K, 800mA LIGHTSQUARE WITH 16 LEDS AND TYPE II OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5778 lumens
Efficiency: N/A
Efficacy: 127.8 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B1 - U0 - G2

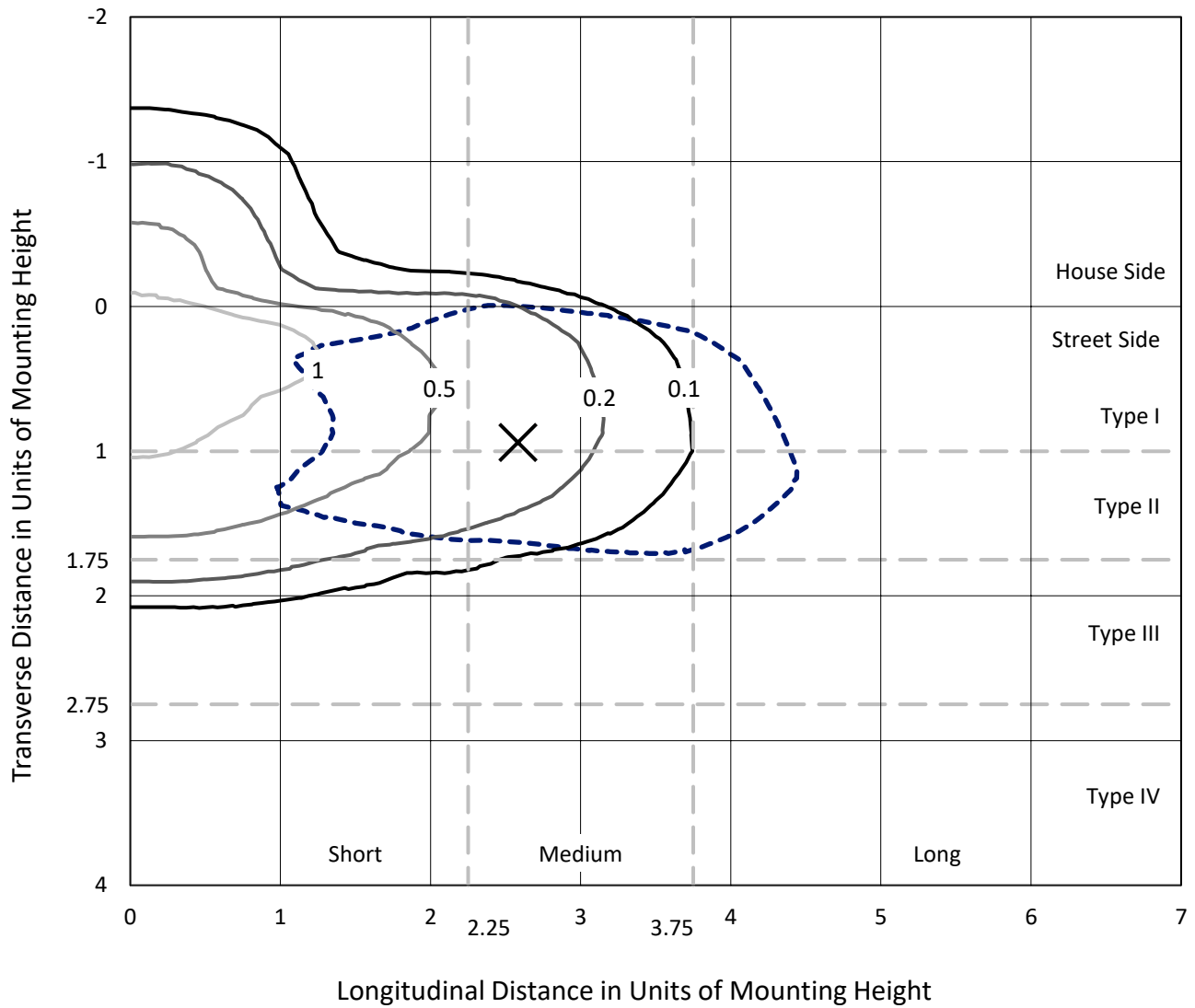
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

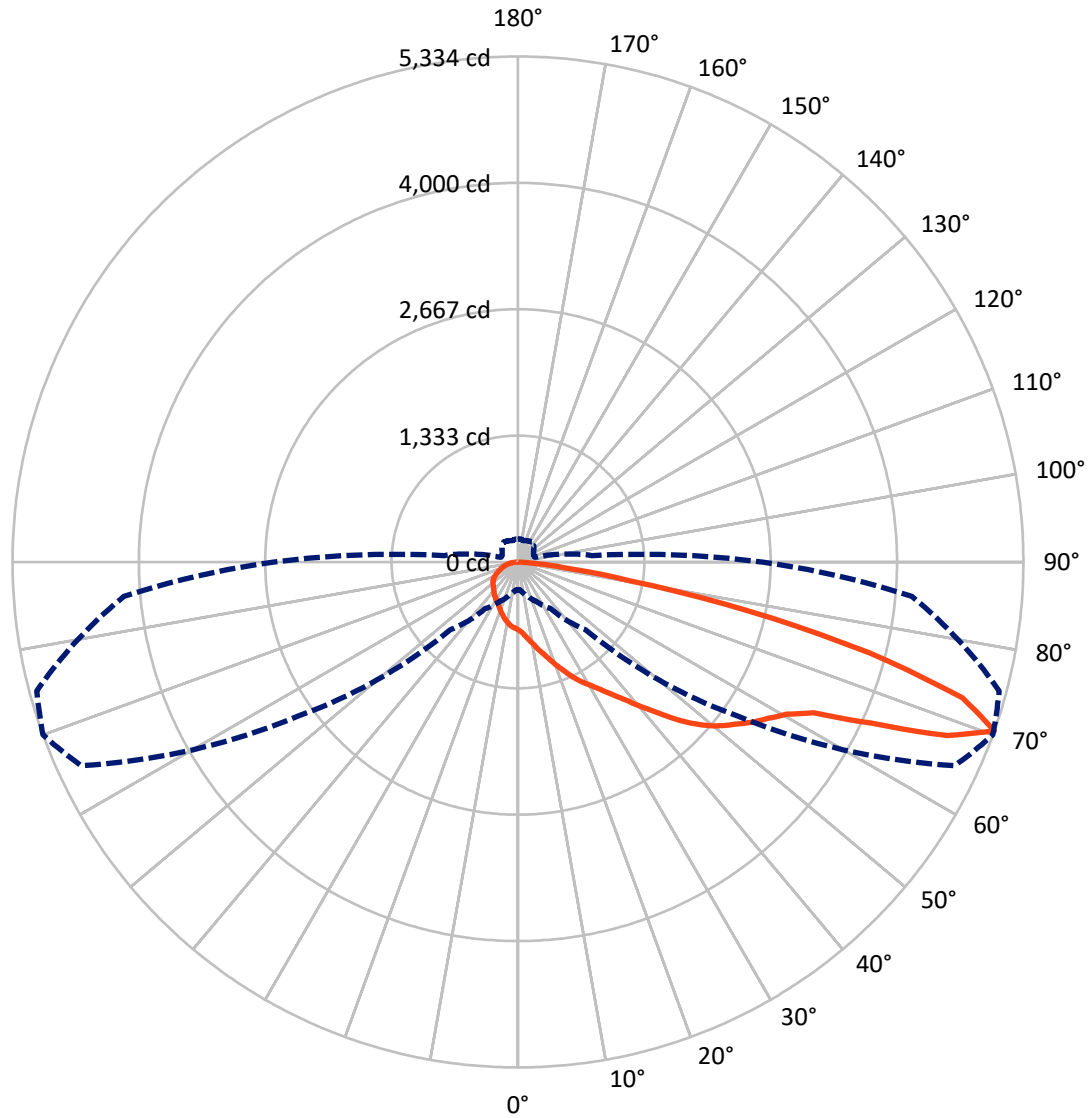
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.6 fc
 Type II - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 70-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1045.1 | 0.0 | 1045.1 |
| | % Fixture | 18.1 | 0.0 | 18.1 |
| Street Side | Lumens | 4732.9 | 0.0 | 4732.9 |
| | % Fixture | 81.9 | 0.0 | 81.9 |
| Total | Lumens | 5778.0 | 0.0 | 5778.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 71.9 | 1.2 |
| 10°-20° | 231.1 | 4.0 |
| 20°-30° | 404.3 | 7.0 |
| 30°-40° | 601.5 | 10.4 |
| 40°-50° | 889.5 | 15.4 |
| 50°-60° | 1253.4 | 21.7 |
| 60°-70° | 1395.0 | 24.1 |
| 70°-80° | 843.7 | 14.6 |
| 80°-90° | 87.6 | 1.5 |
| 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° | 5778.0 | 100.0 |
| 0°-180° | 5778.0 | 100.0 |

Coefficient of Utilization

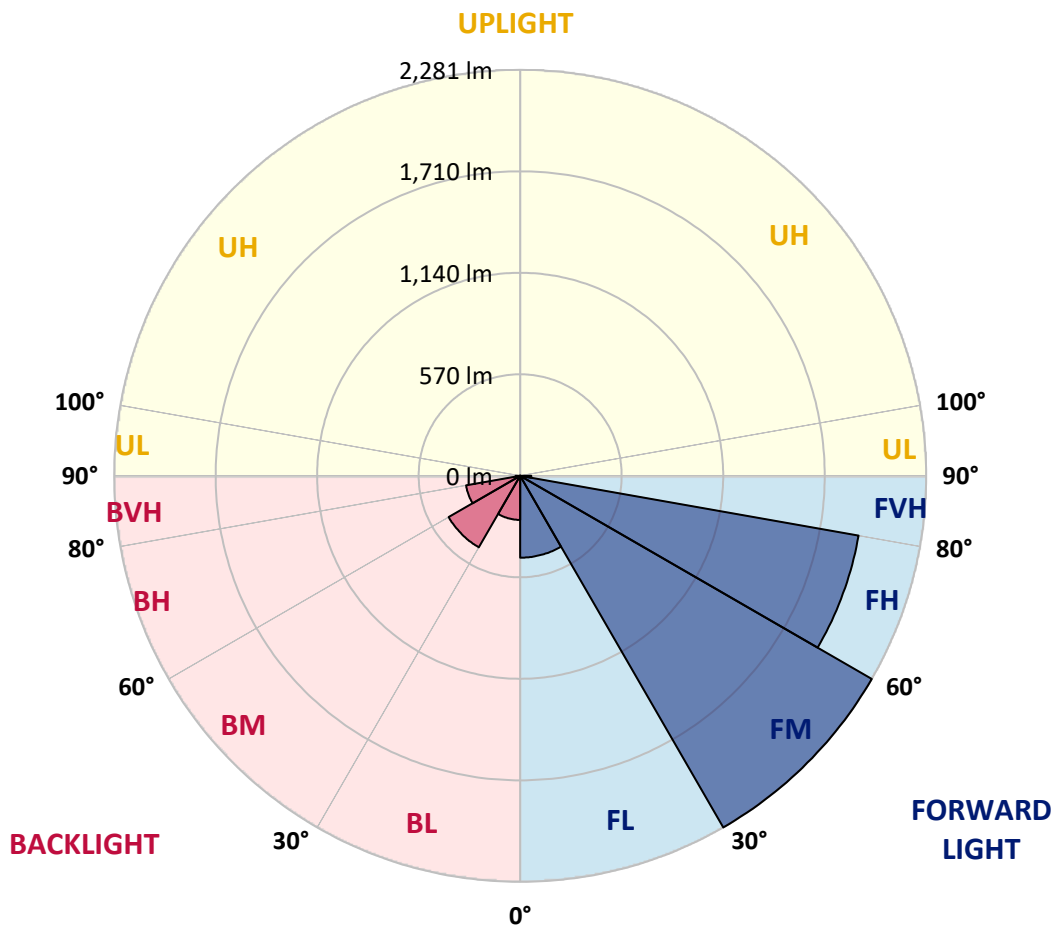


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 459.8 | 8.0 | | | |
| FM (30°-60°) | 2280.5 | 39.5 | | | |
| FH (60°-80°) | 1930.2 | 33.4 | | | G2/5000 |
| FVH (80°-90°) | 62.5 | 1.1 | | | G1/100 |
| BL (0°-30°) | 247.6 | 4.3 | B1/500 | | |
| BM (30°-60°) | 463.8 | 8.0 | B1/1000 | | |
| BH (60°-80°) | 308.5 | 5.3 | B1/500 | | G1/500 |
| BVH (80°-90°) | 25.1 | 0.4 | | | 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 II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 70° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 |
| 2.5° | 800.2 | 798.2 | 787.9 | 792.0 | 785.8 | 773.4 | 761.0 | 752.8 | 742.5 | 740.4 | 730.1 |
| 5° | 882.7 | 880.7 | 874.5 | 866.2 | 853.9 | 839.4 | 816.7 | 796.1 | 779.6 | 765.2 | 746.6 |
| 7.5° | 940.5 | 936.4 | 936.4 | 932.2 | 926.0 | 909.5 | 878.6 | 851.8 | 827.0 | 808.5 | 767.2 |
| 10° | 973.5 | 973.5 | 973.5 | 981.7 | 981.7 | 969.4 | 944.6 | 907.5 | 878.6 | 855.9 | 796.1 |
| 12.5° | 987.9 | 987.9 | 992.0 | 1004.4 | 1023.0 | 1023.0 | 1002.3 | 973.5 | 944.6 | 905.4 | 827.0 |
| 15° | 998.2 | 1000.3 | 1006.5 | 1025.0 | 1051.8 | 1070.4 | 1070.4 | 1043.6 | 1004.4 | 967.3 | 866.2 |
| 17.5° | 1008.5 | 1010.6 | 1023.0 | 1045.7 | 1076.6 | 1111.7 | 1132.3 | 1113.7 | 1078.7 | 1037.4 | 903.4 |
| 20° | 1010.6 | 1008.5 | 1029.2 | 1060.1 | 1105.5 | 1146.7 | 1198.3 | 1202.4 | 1165.3 | 1105.5 | 946.7 |
| 22.5° | 1031.2 | 1031.2 | 1039.5 | 1070.4 | 1119.9 | 1179.7 | 1258.1 | 1280.8 | 1247.8 | 1196.2 | 1000.3 |
| 25° | 1072.5 | 1080.7 | 1086.9 | 1097.2 | 1134.3 | 1206.5 | 1309.7 | 1373.6 | 1342.7 | 1284.9 | 1056.0 |
| 27.5° | 1148.8 | 1148.8 | 1155.0 | 1152.9 | 1165.3 | 1229.2 | 1363.3 | 1462.3 | 1431.3 | 1355.0 | 1091.0 |
| 30° | 1223.0 | 1218.9 | 1225.1 | 1225.1 | 1221.0 | 1256.0 | 1402.5 | 1544.8 | 1511.8 | 1437.5 | 1132.3 |
| 32.5° | 1320.0 | 1322.0 | 1317.9 | 1299.3 | 1293.2 | 1305.5 | 1433.4 | 1623.1 | 1604.6 | 1518.0 | 1169.4 |
| 35° | 1452.0 | 1454.0 | 1431.3 | 1392.2 | 1371.5 | 1373.6 | 1474.7 | 1716.0 | 1718.0 | 1627.3 | 1214.8 |
| 37.5° | 1567.5 | 1577.8 | 1575.7 | 1503.5 | 1468.5 | 1460.2 | 1536.5 | 1810.8 | 1848.0 | 1753.1 | 1284.9 |
| 40° | 1674.7 | 1689.1 | 1685.0 | 1625.2 | 1579.8 | 1559.2 | 1633.5 | 1920.1 | 2006.8 | 1909.8 | 1369.5 |
| 42.5° | 1753.1 | 1761.3 | 1765.5 | 1724.2 | 1683.0 | 1693.3 | 1734.5 | 2043.9 | 2180.0 | 2083.1 | 1482.9 |
| 45° | 1837.6 | 1841.8 | 1848.0 | 1825.3 | 1796.4 | 1845.9 | 1860.3 | 2177.9 | 2382.1 | 2305.8 | 1617.0 |
| 47.5° | 1924.3 | 1940.8 | 1947.0 | 1922.2 | 1903.6 | 1984.1 | 1996.4 | 2307.9 | 2561.6 | 2524.4 | 1751.0 |
| 50° | 2064.5 | 2081.0 | 2074.8 | 2045.9 | 2029.4 | 2091.3 | 2118.1 | 2425.4 | 2720.4 | 2745.1 | 1881.0 |
| 52.5° | 2246.0 | 2256.3 | 2283.1 | 2233.6 | 2196.5 | 2173.8 | 2219.2 | 2555.4 | 2848.2 | 2939.0 | 2019.1 |
| 55° | 2281.1 | 2295.5 | 2392.4 | 2437.8 | 2468.8 | 2297.6 | 2326.4 | 2670.9 | 2986.4 | 3122.5 | 2173.8 |
| 57.5° | 2136.7 | 2144.9 | 2301.7 | 2439.9 | 2662.6 | 2602.8 | 2479.1 | 2819.4 | 3114.3 | 3312.3 | 2330.6 |
| 60° | 1777.8 | 1808.8 | 2012.9 | 2256.3 | 2609.0 | 2914.2 | 2875.1 | 3011.2 | 3258.7 | 3502.0 | 2557.4 |
| 62.5° | 1159.1 | 1188.0 | 1404.5 | 1817.0 | 2314.1 | 2918.4 | 3442.2 | 3403.0 | 3504.1 | 3733.0 | 2842.1 |
| 65° | 591.9 | 602.2 | 789.9 | 1101.3 | 1668.5 | 2609.0 | 3782.5 | 4211.5 | 4096.0 | 4195.0 | 3458.7 |
| 67.5° | 393.9 | 402.2 | 486.7 | 635.2 | 992.0 | 1806.7 | 3671.2 | 5028.2 | 4888.0 | 4941.6 | 4114.6 |
| 70° | 290.8 | 299.1 | 369.2 | 459.9 | 600.2 | 1012.7 | 2840.0 | 5086.0 | 5333.5 | 5257.2 | 4172.3 |
| 72.5° | 216.6 | 218.6 | 261.9 | 354.7 | 443.4 | 544.5 | 1678.8 | 4197.1 | 4902.4 | 5178.8 | 3877.4 |
| 75° | 165.0 | 165.0 | 187.7 | 261.9 | 346.5 | 350.6 | 936.4 | 3099.9 | 3823.8 | 4331.1 | 3233.9 |
| 77.5° | 123.7 | 127.9 | 138.2 | 181.5 | 257.8 | 251.6 | 441.4 | 2052.1 | 2487.3 | 2823.5 | 1990.3 |
| 80° | 88.7 | 90.7 | 96.9 | 111.4 | 171.2 | 162.9 | 222.7 | 990.0 | 1185.9 | 1262.2 | 812.6 |
| 82.5° | 55.7 | 55.7 | 68.1 | 68.1 | 96.9 | 101.1 | 101.1 | 400.1 | 478.5 | 536.2 | 272.2 |
| 85° | 10.3 | 10.3 | 20.6 | 26.8 | 30.9 | 35.1 | 30.9 | 101.1 | 138.2 | 162.9 | 92.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 |
| 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° | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 | 715.7 |
| 2.5° | 721.9 | 717.7 | 707.4 | 695.0 | 686.8 | 678.5 | 672.4 | 668.2 | 666.2 | 666.2 | 664.1 |
| 5° | 732.2 | 719.8 | 699.2 | 678.5 | 660.0 | 645.5 | 635.2 | 629.0 | 624.9 | 627.0 | 622.9 |
| 7.5° | 748.7 | 726.0 | 688.9 | 655.9 | 631.1 | 612.5 | 604.3 | 600.2 | 602.2 | 604.3 | 604.3 |
| 10° | 761.0 | 730.1 | 670.3 | 624.9 | 602.2 | 591.9 | 589.9 | 594.0 | 600.2 | 602.2 | 600.2 |
| 12.5° | 775.5 | 732.2 | 649.7 | 598.1 | 583.7 | 577.5 | 587.8 | 598.1 | 608.4 | 616.7 | 612.5 |
| 15° | 798.2 | 732.2 | 624.9 | 575.4 | 565.1 | 571.3 | 589.9 | 604.3 | 622.9 | 631.1 | 633.2 |
| 17.5° | 814.7 | 726.0 | 594.0 | 550.7 | 548.6 | 565.1 | 591.9 | 616.7 | 635.2 | 649.7 | 649.7 |
| 20° | 831.2 | 715.7 | 563.0 | 528.0 | 536.2 | 558.9 | 589.9 | 618.7 | 641.4 | 655.9 | 660.0 |
| 22.5° | 851.8 | 701.2 | 532.1 | 507.4 | 521.8 | 550.7 | 583.7 | 608.4 | 629.0 | 641.4 | 643.5 |
| 25° | 866.2 | 676.5 | 501.2 | 490.9 | 513.5 | 540.4 | 565.1 | 581.6 | 591.9 | 600.2 | 600.2 |
| 27.5° | 874.5 | 647.6 | 476.4 | 478.5 | 503.2 | 525.9 | 538.3 | 538.3 | 542.4 | 542.4 | 540.4 |
| 30° | 864.2 | 616.7 | 457.9 | 466.1 | 488.8 | 505.3 | 509.4 | 501.2 | 488.8 | 476.4 | 472.3 |
| 32.5° | 860.0 | 575.4 | 439.3 | 453.7 | 470.2 | 478.5 | 476.4 | 464.1 | 441.4 | 422.8 | 422.8 |
| 35° | 851.8 | 536.2 | 422.8 | 439.3 | 449.6 | 451.7 | 447.6 | 429.0 | 408.4 | 391.9 | 389.8 |
| 37.5° | 845.6 | 505.3 | 408.4 | 422.8 | 429.0 | 431.1 | 422.8 | 406.3 | 393.9 | 381.6 | 379.5 |
| 40° | 864.2 | 478.5 | 393.9 | 404.2 | 408.4 | 408.4 | 400.1 | 387.7 | 393.9 | 391.9 | 391.9 |
| 42.5° | 899.2 | 468.2 | 379.5 | 385.7 | 389.8 | 393.9 | 387.7 | 377.4 | 391.9 | 379.5 | 383.6 |
| 45° | 950.8 | 468.2 | 369.2 | 371.2 | 375.4 | 385.7 | 383.6 | 369.2 | 371.2 | 342.4 | 336.2 |
| 47.5° | 1027.1 | 480.6 | 360.9 | 354.7 | 365.1 | 379.5 | 373.3 | 356.8 | 340.3 | 317.6 | 315.6 |
| 50° | 1113.7 | 505.3 | 352.7 | 338.2 | 354.7 | 371.2 | 365.1 | 344.4 | 325.9 | 313.5 | 311.4 |
| 52.5° | 1200.3 | 536.2 | 346.5 | 321.7 | 336.2 | 367.1 | 365.1 | 342.4 | 315.6 | 307.3 | 305.2 |
| 55° | 1307.6 | 565.1 | 336.2 | 303.2 | 321.7 | 363.0 | 363.0 | 330.0 | 309.4 | 307.3 | 305.2 |
| 57.5° | 1429.3 | 602.2 | 319.7 | 278.4 | 303.2 | 350.6 | 348.6 | 321.7 | 305.2 | 301.1 | 303.2 |
| 60° | 1586.0 | 647.6 | 294.9 | 255.7 | 286.7 | 332.1 | 336.2 | 313.5 | 297.0 | 294.9 | 294.9 |
| 62.5° | 1852.1 | 732.2 | 266.1 | 235.1 | 266.1 | 307.3 | 317.6 | 299.1 | 286.7 | 288.7 | 290.8 |
| 65° | 2363.6 | 891.0 | 233.1 | 216.6 | 245.4 | 280.5 | 301.1 | 284.6 | 272.2 | 280.5 | 280.5 |
| 67.5° | 2743.1 | 961.1 | 206.2 | 198.0 | 224.8 | 259.9 | 282.6 | 268.1 | 255.7 | 266.1 | 266.1 |
| 70° | 2578.1 | 781.7 | 185.6 | 181.5 | 202.1 | 237.2 | 257.8 | 245.4 | 233.1 | 243.4 | 241.3 |
| 72.5° | 2289.3 | 620.8 | 162.9 | 162.9 | 179.4 | 210.4 | 233.1 | 220.7 | 204.2 | 208.3 | 206.2 |
| 75° | 2004.7 | 575.4 | 142.3 | 142.3 | 156.7 | 181.5 | 200.1 | 193.9 | 177.4 | 175.3 | 171.2 |
| 77.5° | 1157.0 | 383.6 | 119.6 | 121.7 | 127.9 | 150.6 | 169.1 | 150.6 | 138.2 | 136.1 | 134.1 |
| 80° | 455.8 | 187.7 | 96.9 | 94.9 | 94.9 | 113.4 | 121.7 | 113.4 | 103.1 | 101.1 | 96.9 |
| 82.5° | 165.0 | 94.9 | 74.2 | 66.0 | 68.1 | 82.5 | 94.9 | 88.7 | 80.4 | 63.9 | 59.8 |
| 85° | 63.9 | 47.4 | 49.5 | 39.2 | 43.3 | 43.3 | 49.5 | 41.2 | 28.9 | 20.6 | 20.6 |
| 87.5° | 4.1 | 4.1 | 4.1 | 4.1 | 2.1 | 2.1 | 0.0 | 0.0 | 2.1 | 2.1 | 2.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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



Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW-EDISON
 Catalog Number: **SA1C-760-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 5474
 CIE u': 0.2052
 CIE v': 0.4804
 Duv: 0.0025
 CIE x: 0.3330
 CIE y: 0.3466
 CIE z: 0.3204
 Peak Wavelength (nm): 442
 Dominant Wavelength (nm): 554
 Purity: 4.1

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 70.6 | R9: | -27.1 |
| R2: | 74.6 | R10: | 40.8 |
| R3: | 78.3 | R11: | 74.6 |
| R4: | 73.8 | R12: | 50.4 |
| R5: | 72.4 | R13: | 70.0 |
| R6: | 67.5 | R14: | 87.8 |
| R7: | 77.5 | | |
| R8: | 58.9 | | |

Rf: 72.1
 Rg: 97.2



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

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| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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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 5700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)