

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: P438817

Luminaire Tested: **ISW-SA1F-722-U-T2**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438817
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1F-722-U-T2
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 2200K, 1200mA LIGHTSQUARE WITH 16 LEDS AND TYPE II OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5759 lumens
Efficiency: N/A
Efficacy: 87.3 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

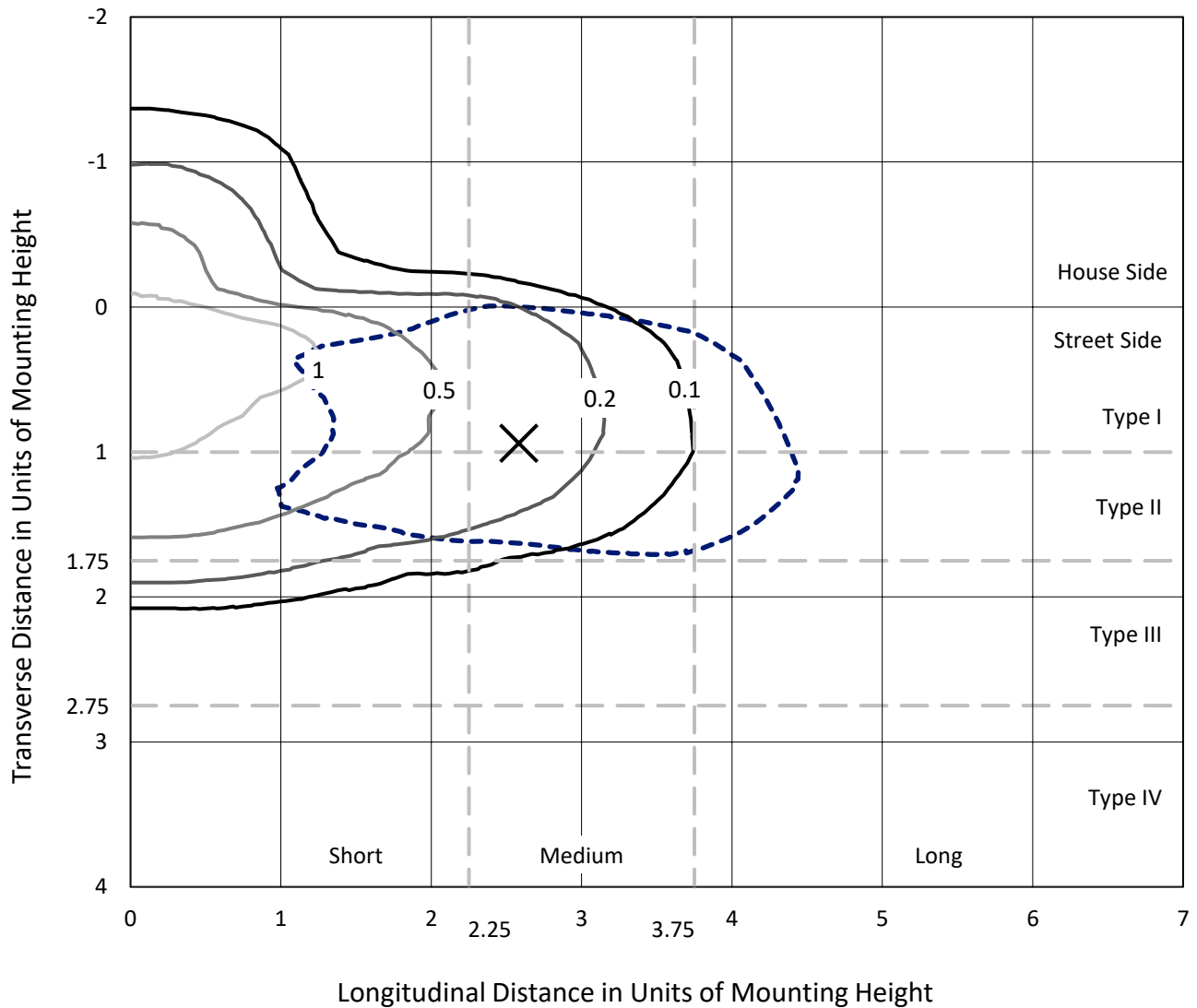
Input Watts (W): 66
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

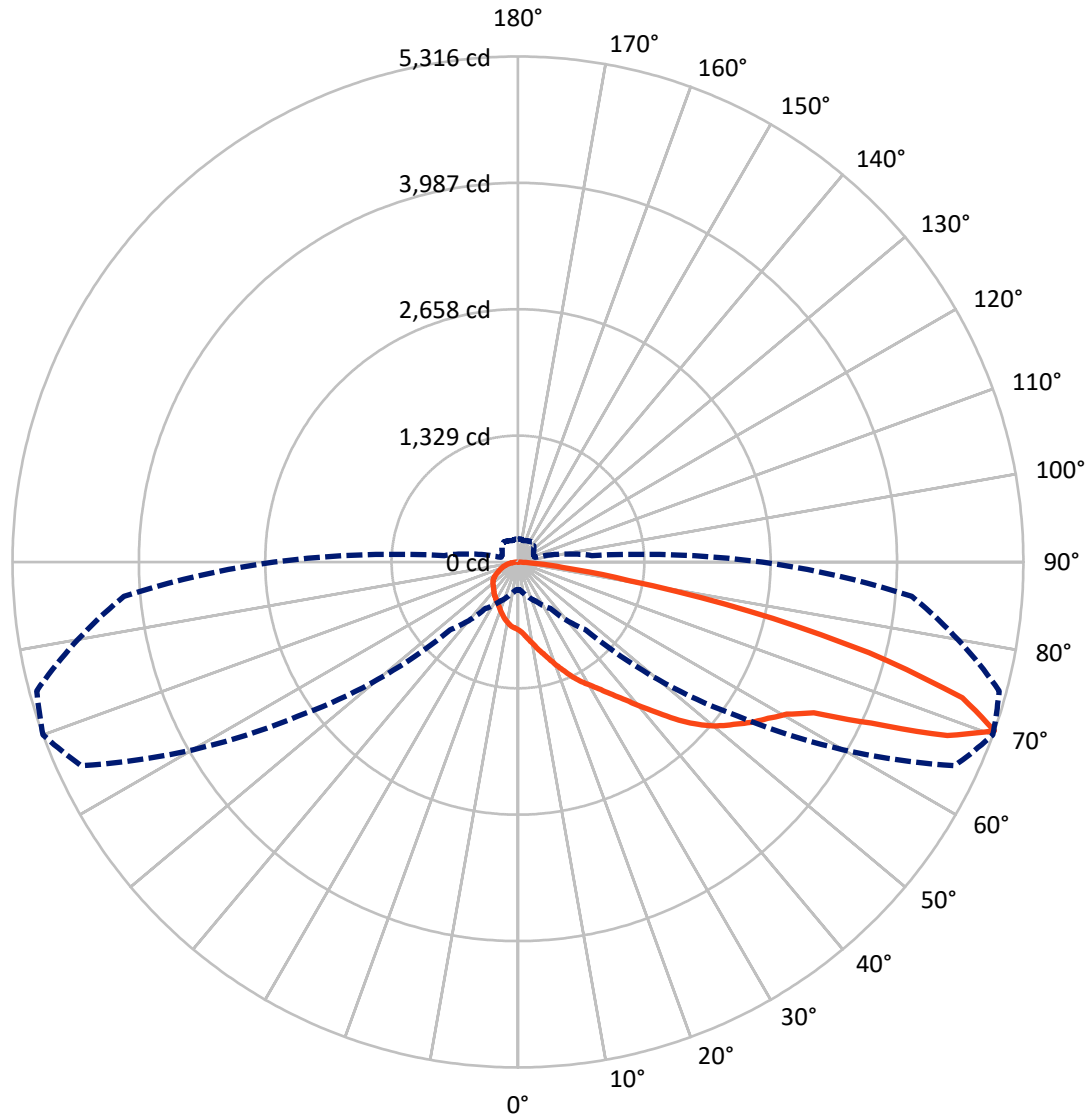
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 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 | 1041.6 | 0.0 | 1041.6 |
| | % Fixture | 18.1 | 0.0 | 18.1 |
| Street Side | Lumens | 4717.4 | 0.0 | 4717.4 |
| | % Fixture | 81.9 | 0.0 | 81.9 |
| Total | Lumens | 5759.0 | 0.0 | 5759.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 71.7 | 1.2 |
| 10°-20° | 230.3 | 4.0 |
| 20°-30° | 403.0 | 7.0 |
| 30°-40° | 599.5 | 10.4 |
| 40°-50° | 886.6 | 15.4 |
| 50°-60° | 1249.2 | 21.7 |
| 60°-70° | 1390.4 | 24.1 |
| 70°-80° | 841.0 | 14.6 |
| 80°-90° | 87.3 | 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° | 5759.0 | 100.0 |
| 0°-180° | 5759.0 | 100.0 |

Coefficient of Utilization

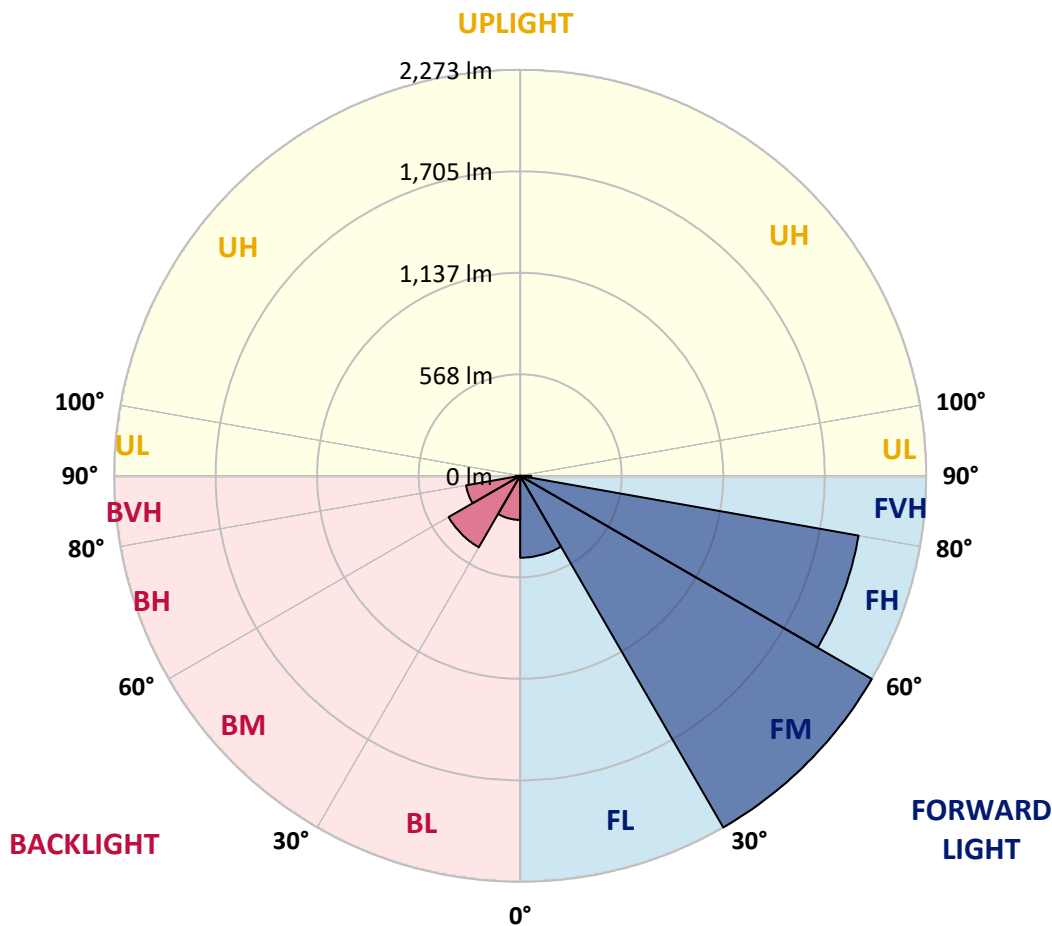


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 458.3 | 8.0 | | | |
| FM (30°-60°) | 2273.0 | 39.5 | | | |
| FH (60°-80°) | 1923.8 | 33.4 | | | G2/5000 |
| FVH (80°-90°) | 62.2 | 1.1 | | | G1/100 |
| BL (0°-30°) | 246.7 | 4.3 | B1/500 | | |
| BM (30°-60°) | 462.3 | 8.0 | B1/1000 | | |
| BH (60°-80°) | 307.5 | 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° | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 |
| 2.5° | 797.6 | 795.5 | 785.3 | 789.4 | 783.2 | 770.9 | 758.5 | 750.3 | 740.0 | 738.0 | 727.7 |
| 5° | 879.8 | 877.8 | 871.6 | 863.4 | 851.0 | 836.7 | 814.0 | 793.5 | 777.0 | 762.7 | 744.2 |
| 7.5° | 937.4 | 933.3 | 933.3 | 929.2 | 923.0 | 906.5 | 875.7 | 849.0 | 824.3 | 805.8 | 764.7 |
| 10° | 970.3 | 970.3 | 970.3 | 978.5 | 978.5 | 966.2 | 941.5 | 904.5 | 875.7 | 853.1 | 793.5 |
| 12.5° | 984.7 | 984.7 | 988.8 | 1001.1 | 1019.6 | 1019.6 | 999.1 | 970.3 | 941.5 | 902.4 | 824.3 |
| 15° | 994.9 | 997.0 | 1003.2 | 1021.7 | 1048.4 | 1066.9 | 1066.9 | 1040.2 | 1001.1 | 964.1 | 863.4 |
| 17.5° | 1005.2 | 1007.3 | 1019.6 | 1042.2 | 1073.1 | 1108.0 | 1128.6 | 1110.1 | 1075.1 | 1034.0 | 900.4 |
| 20° | 1007.3 | 1005.2 | 1025.8 | 1056.6 | 1101.8 | 1143.0 | 1194.3 | 1198.5 | 1161.5 | 1101.8 | 943.6 |
| 22.5° | 1027.8 | 1027.8 | 1036.1 | 1066.9 | 1116.2 | 1175.8 | 1254.0 | 1276.6 | 1243.7 | 1192.3 | 997.0 |
| 25° | 1068.9 | 1077.2 | 1083.3 | 1093.6 | 1130.6 | 1202.6 | 1305.3 | 1369.1 | 1338.2 | 1280.7 | 1052.5 |
| 27.5° | 1145.0 | 1145.0 | 1151.2 | 1149.1 | 1161.5 | 1225.2 | 1358.8 | 1457.5 | 1426.6 | 1350.6 | 1087.4 |
| 30° | 1219.0 | 1214.9 | 1221.1 | 1221.1 | 1217.0 | 1251.9 | 1397.9 | 1539.7 | 1506.8 | 1432.8 | 1128.6 |
| 32.5° | 1315.6 | 1317.7 | 1313.6 | 1295.1 | 1288.9 | 1301.2 | 1428.7 | 1617.8 | 1599.3 | 1513.0 | 1165.6 |
| 35° | 1447.2 | 1449.2 | 1426.6 | 1387.6 | 1367.0 | 1369.1 | 1469.8 | 1710.3 | 1712.4 | 1621.9 | 1210.8 |
| 37.5° | 1562.3 | 1572.6 | 1570.5 | 1498.6 | 1463.6 | 1455.4 | 1531.5 | 1804.9 | 1841.9 | 1747.3 | 1280.7 |
| 40° | 1669.2 | 1683.6 | 1679.5 | 1619.9 | 1574.6 | 1554.1 | 1628.1 | 1913.8 | 2000.2 | 1903.5 | 1365.0 |
| 42.5° | 1747.3 | 1755.5 | 1759.7 | 1718.5 | 1677.4 | 1687.7 | 1728.8 | 2037.2 | 2172.8 | 2076.2 | 1478.0 |
| 45° | 1831.6 | 1835.7 | 1841.9 | 1819.3 | 1790.5 | 1839.8 | 1854.2 | 2170.8 | 2374.3 | 2298.2 | 1611.6 |
| 47.5° | 1917.9 | 1934.4 | 1940.5 | 1915.9 | 1897.4 | 1977.6 | 1989.9 | 2300.3 | 2553.1 | 2516.1 | 1745.3 |
| 50° | 2057.7 | 2074.2 | 2068.0 | 2039.2 | 2022.8 | 2084.4 | 2111.2 | 2417.5 | 2711.4 | 2736.1 | 1874.8 |
| 52.5° | 2238.6 | 2248.9 | 2275.6 | 2226.3 | 2189.3 | 2166.7 | 2211.9 | 2547.0 | 2838.9 | 2929.3 | 2012.5 |
| 55° | 2273.6 | 2288.0 | 2384.6 | 2429.8 | 2460.6 | 2290.0 | 2318.8 | 2662.1 | 2976.6 | 3112.3 | 2166.7 |
| 57.5° | 2129.7 | 2137.9 | 2294.1 | 2431.9 | 2653.9 | 2594.3 | 2470.9 | 2810.1 | 3104.1 | 3301.4 | 2322.9 |
| 60° | 1772.0 | 1802.8 | 2006.3 | 2248.9 | 2600.4 | 2904.7 | 2865.6 | 3001.3 | 3248.0 | 3490.5 | 2549.0 |
| 62.5° | 1155.3 | 1184.1 | 1399.9 | 1811.0 | 2306.5 | 2908.8 | 3430.9 | 3391.8 | 3492.6 | 3720.8 | 2832.7 |
| 65° | 590.0 | 600.3 | 787.3 | 1097.7 | 1663.0 | 2600.4 | 3770.1 | 4197.7 | 4082.6 | 4181.2 | 3447.4 |
| 67.5° | 392.6 | 400.9 | 485.1 | 633.1 | 988.8 | 1800.8 | 3659.1 | 5011.7 | 4871.9 | 4925.4 | 4101.1 |
| 70° | 289.8 | 298.1 | 368.0 | 458.4 | 598.2 | 1009.3 | 2830.7 | 5069.3 | 5316.0 | 5239.9 | 4158.6 |
| 72.5° | 215.8 | 217.9 | 261.1 | 353.6 | 442.0 | 542.7 | 1673.3 | 4183.3 | 4886.3 | 5161.8 | 3864.7 |
| 75° | 164.5 | 164.5 | 187.1 | 261.1 | 345.4 | 349.5 | 933.3 | 3089.7 | 3811.2 | 4316.9 | 3223.3 |
| 77.5° | 123.3 | 127.5 | 137.7 | 180.9 | 257.0 | 250.8 | 439.9 | 2045.4 | 2479.1 | 2814.2 | 1983.7 |
| 80° | 88.4 | 90.4 | 96.6 | 111.0 | 170.6 | 162.4 | 222.0 | 986.7 | 1182.0 | 1258.1 | 809.9 |
| 82.5° | 55.5 | 55.5 | 67.8 | 67.8 | 96.6 | 100.7 | 100.7 | 398.8 | 476.9 | 534.5 | 271.3 |
| 85° | 10.3 | 10.3 | 20.6 | 26.7 | 30.8 | 34.9 | 30.8 | 100.7 | 137.7 | 162.4 | 92.5 |
| 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° | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 | 713.3 |
| 2.5° | 719.5 | 715.4 | 705.1 | 692.8 | 684.5 | 676.3 | 670.1 | 666.0 | 664.0 | 664.0 | 661.9 |
| 5° | 729.8 | 717.4 | 696.9 | 676.3 | 657.8 | 643.4 | 633.1 | 627.0 | 622.9 | 624.9 | 620.8 |
| 7.5° | 746.2 | 723.6 | 686.6 | 653.7 | 629.0 | 610.5 | 602.3 | 598.2 | 600.3 | 602.3 | 602.3 |
| 10° | 758.5 | 727.7 | 668.1 | 622.9 | 600.3 | 590.0 | 587.9 | 592.0 | 598.2 | 600.3 | 598.2 |
| 12.5° | 772.9 | 729.8 | 647.5 | 596.1 | 581.8 | 575.6 | 585.9 | 596.1 | 606.4 | 614.6 | 610.5 |
| 15° | 795.5 | 729.8 | 622.9 | 573.5 | 563.3 | 569.4 | 587.9 | 602.3 | 620.8 | 629.0 | 631.1 |
| 17.5° | 812.0 | 723.6 | 592.0 | 548.9 | 546.8 | 563.3 | 590.0 | 614.6 | 633.1 | 647.5 | 647.5 |
| 20° | 828.4 | 713.3 | 561.2 | 526.3 | 534.5 | 557.1 | 587.9 | 616.7 | 639.3 | 653.7 | 657.8 |
| 22.5° | 849.0 | 698.9 | 530.4 | 505.7 | 520.1 | 548.9 | 581.8 | 606.4 | 627.0 | 639.3 | 641.4 |
| 25° | 863.4 | 674.3 | 499.5 | 489.2 | 511.9 | 538.6 | 563.3 | 579.7 | 590.0 | 598.2 | 598.2 |
| 27.5° | 871.6 | 645.5 | 474.9 | 476.9 | 501.6 | 524.2 | 536.5 | 536.5 | 540.6 | 540.6 | 538.6 |
| 30° | 861.3 | 614.6 | 456.4 | 464.6 | 487.2 | 503.6 | 507.7 | 499.5 | 487.2 | 474.9 | 470.7 |
| 32.5° | 857.2 | 573.5 | 437.9 | 452.2 | 468.7 | 476.9 | 474.9 | 462.5 | 439.9 | 421.4 | 421.4 |
| 35° | 849.0 | 534.5 | 421.4 | 437.9 | 448.1 | 450.2 | 446.1 | 427.6 | 407.0 | 390.6 | 388.5 |
| 37.5° | 842.8 | 503.6 | 407.0 | 421.4 | 427.6 | 429.6 | 421.4 | 405.0 | 392.6 | 380.3 | 378.2 |
| 40° | 861.3 | 476.9 | 392.6 | 402.9 | 407.0 | 407.0 | 398.8 | 386.5 | 392.6 | 390.6 | 390.6 |
| 42.5° | 896.3 | 466.6 | 378.2 | 384.4 | 388.5 | 392.6 | 386.5 | 376.2 | 390.6 | 378.2 | 382.4 |
| 45° | 947.7 | 466.6 | 368.0 | 370.0 | 374.1 | 384.4 | 382.4 | 368.0 | 370.0 | 341.2 | 335.1 |
| 47.5° | 1023.7 | 479.0 | 359.7 | 353.6 | 363.9 | 378.2 | 372.1 | 355.6 | 339.2 | 316.6 | 314.5 |
| 50° | 1110.1 | 503.6 | 351.5 | 337.1 | 353.6 | 370.0 | 363.9 | 343.3 | 324.8 | 312.5 | 310.4 |
| 52.5° | 1196.4 | 534.5 | 345.4 | 320.7 | 335.1 | 365.9 | 363.9 | 341.2 | 314.5 | 306.3 | 304.2 |
| 55° | 1303.3 | 563.3 | 335.1 | 302.2 | 320.7 | 361.8 | 361.8 | 328.9 | 308.3 | 306.3 | 304.2 |
| 57.5° | 1424.6 | 600.3 | 318.6 | 277.5 | 302.2 | 349.5 | 347.4 | 320.7 | 304.2 | 300.1 | 302.2 |
| 60° | 1580.8 | 645.5 | 294.0 | 254.9 | 285.7 | 331.0 | 335.1 | 312.5 | 296.0 | 294.0 | 294.0 |
| 62.5° | 1846.0 | 729.8 | 265.2 | 234.3 | 265.2 | 306.3 | 316.6 | 298.1 | 285.7 | 287.8 | 289.8 |
| 65° | 2355.8 | 888.0 | 232.3 | 215.8 | 244.6 | 279.6 | 300.1 | 283.7 | 271.3 | 279.6 | 279.6 |
| 67.5° | 2734.0 | 957.9 | 205.6 | 197.3 | 224.1 | 259.0 | 281.6 | 267.2 | 254.9 | 265.2 | 265.2 |
| 70° | 2569.6 | 779.1 | 185.0 | 180.9 | 201.5 | 236.4 | 257.0 | 244.6 | 232.3 | 242.6 | 240.5 |
| 72.5° | 2281.8 | 618.8 | 162.4 | 162.4 | 178.8 | 209.7 | 232.3 | 220.0 | 203.5 | 207.6 | 205.6 |
| 75° | 1998.1 | 573.5 | 141.8 | 141.8 | 156.2 | 180.9 | 199.4 | 193.2 | 176.8 | 174.7 | 170.6 |
| 77.5° | 1153.2 | 382.4 | 119.2 | 121.3 | 127.5 | 150.1 | 168.6 | 150.1 | 137.7 | 135.7 | 133.6 |
| 80° | 454.3 | 187.1 | 96.6 | 94.6 | 94.6 | 113.1 | 121.3 | 113.1 | 102.8 | 100.7 | 96.6 |
| 82.5° | 164.5 | 94.6 | 74.0 | 65.8 | 67.8 | 82.2 | 94.6 | 88.4 | 80.2 | 63.7 | 59.6 |
| 85° | 63.7 | 47.3 | 49.3 | 39.1 | 43.2 | 43.2 | 49.3 | 41.1 | 28.8 | 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: SP1-1908-441-10-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-722-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): 2237
 CIE u': 0.2876
 CIE v': 0.5346
 Duv: -0.0006
 CIE x: 0.5005
 CIE y: 0.4134
 CIE z: 0.0860
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 74.5
 Rf: 69.8
 Rg: 99.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.9 | R9: | -17.4 |
| R2: | 83.0 | R10: | 61.3 |
| R3: | 95.2 | R11: | 59.8 |
| R4: | 66.2 | R12: | 50.5 |
| R5: | 65.9 | R13: | 71.1 |
| R6: | 76.3 | R14: | 96.9 |
| R7: | 76.7 | | |
| R8: | 43.8 | | |



Test Conditions

Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.7/41%
 Sphere Temperature (°C): 25.6

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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 2200K 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 1470.8 M/P: 0.27

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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Summary

$R_f = 69.8$
 $R_g = 99.2$
 $CIE R_a = 72.0$
 $R_9 = -17.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)