

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P638365

Luminaire Tested: GWS-SA4E-760-U-SL3-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P638365
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-34)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4E-760-U-SL3-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: (64) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 25006.2 lumens
Efficiency: N/A
Efficacy: 123.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type III - Short
BUG Rating: B2 - U0 - G4

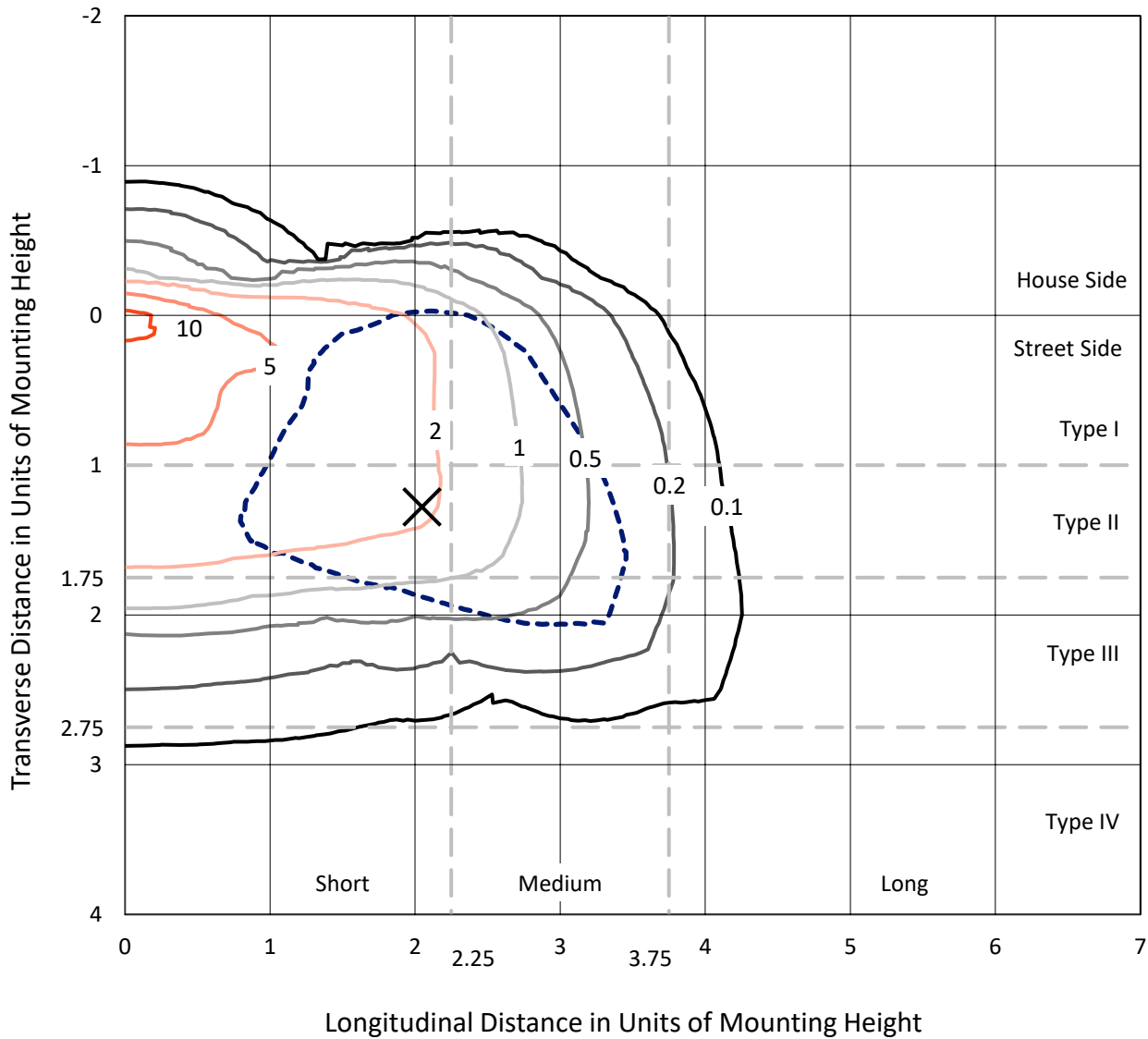
Input Watts (W): 202.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P638365
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Iso-Footcandle Lines of Horizontal Illumination

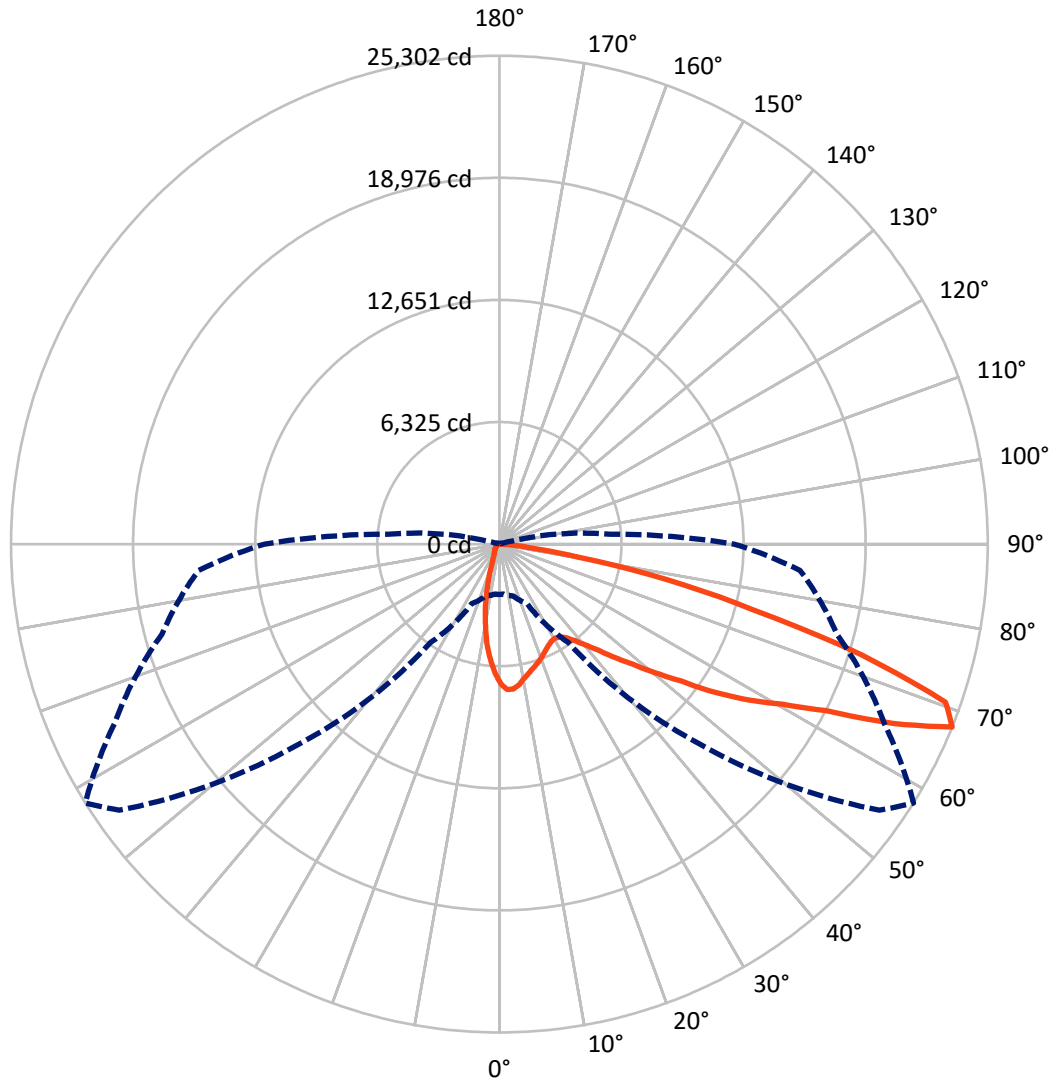
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 11.5 fc
 Type III - Short - N/A

REPORT NUMBER: P638365
CATALOG NUMBER: GWS-SA4E-760-U-SL3-W-HSS

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 | 2442.9 | 0.0 | 2442.9 |
| | % Fixture | 9.8 | 0.0 | 9.8 |
| Street Side | Lumens | 22563.3 | 0.0 | 22563.3 |
| | % Fixture | 90.2 | 0.0 | 90.2 |
| Total | Lumens | 25006.2 | 0.0 | 25006.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 586.1 | 2.3 |
| 10°-20° | 1220.1 | 4.9 |
| 20°-30° | 1645.4 | 6.6 |
| 30°-40° | 2312.1 | 9.2 |
| 40°-50° | 3570.8 | 14.3 |
| 50°-60° | 5710.2 | 22.8 |
| 60°-70° | 6761.3 | 27.0 |
| 70°-80° | 2991.0 | 12.0 |
| 80°-90° | 209.1 | 0.8 |
| 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° | 25006.2 | 100.0 |
| 0°-180° | 25006.2 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P638365

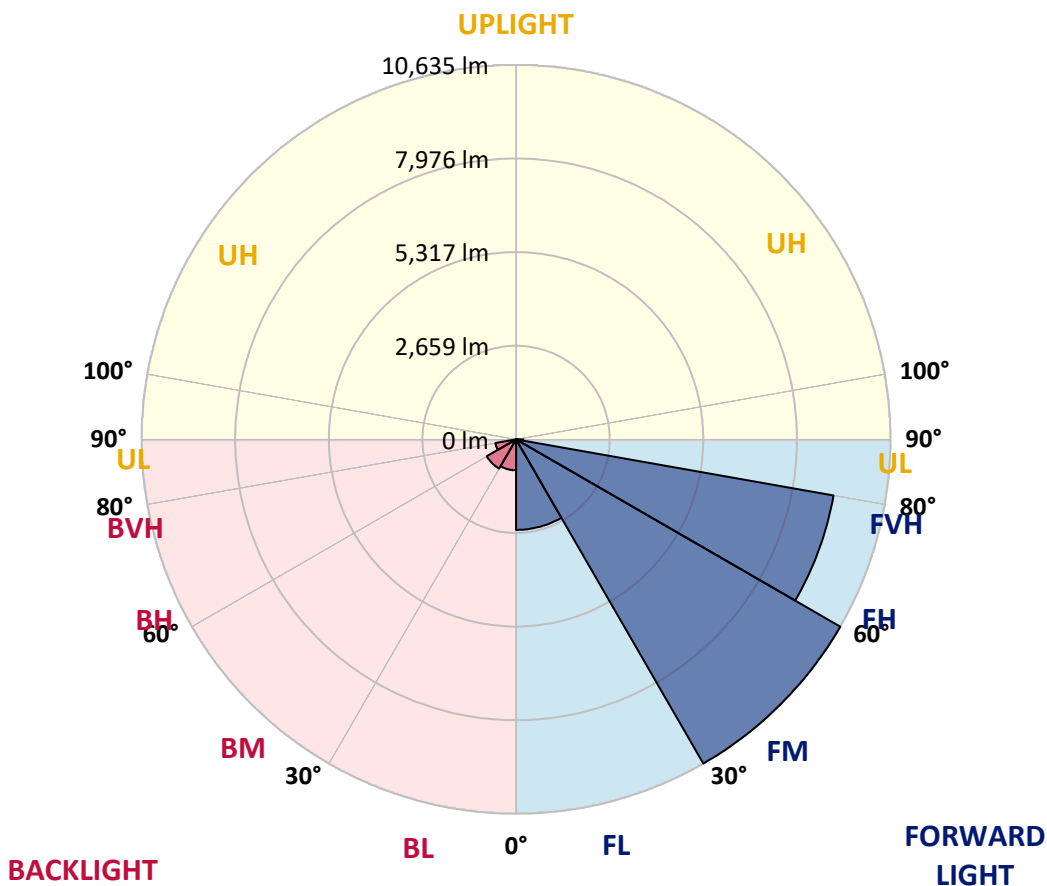
CATALOG NUMBER: GWS-SA4E-760-U-SL3-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 2572.5 | 10.3 | | | |
| FM (30°-60°) | 10634.6 | 42.5 | | | |
| FH (60°-80°) | 9155.9 | 36.6 | | | G4/12000 |
| FVH (80°-90°) | 200.2 | 0.8 | | | G2/225 |
| BL (0°-30°) | 879.1 | 3.5 | B2/1000 | | |
| BM (30°-60°) | 958.5 | 3.8 | B1/1000 | | |
| BH (60°-80°) | 596.4 | 2.4 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 8.9 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G4

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 |
| 2.5° | 7587.0 | 7600.3 | 7618.0 | 7640.1 | 7635.7 | 7615.8 | 7591.4 | 7536.1 | 7500.7 | 7390.0 | 7255.0 |
| 5° | 7343.5 | 7341.3 | 7385.6 | 7427.6 | 7502.9 | 7542.7 | 7598.1 | 7547.2 | 7529.5 | 7396.7 | 7177.5 |
| 7.5° | 6867.7 | 6892.0 | 6942.9 | 7009.3 | 7117.8 | 7235.1 | 7367.9 | 7352.4 | 7405.5 | 7317.0 | 7044.8 |
| 10° | 6400.7 | 6387.4 | 6467.1 | 6566.7 | 6732.7 | 6883.2 | 7075.7 | 7073.5 | 7213.0 | 7204.1 | 6894.3 |
| 12.5° | 5991.3 | 5989.0 | 6051.0 | 6163.9 | 6358.6 | 6568.9 | 6830.1 | 6836.7 | 7009.3 | 7080.2 | 6765.9 |
| 15° | 5646.0 | 5650.4 | 5710.2 | 5827.5 | 6028.9 | 6285.6 | 6588.8 | 6644.2 | 6838.9 | 6982.8 | 6639.7 |
| 17.5° | 5400.3 | 5402.5 | 5437.9 | 5539.7 | 5736.7 | 6011.2 | 6376.4 | 6451.6 | 6701.7 | 6909.7 | 6537.9 |
| 20° | 5287.4 | 5278.6 | 5285.2 | 5336.1 | 5488.8 | 5738.9 | 6159.5 | 6256.8 | 6575.5 | 6858.8 | 6445.0 |
| 22.5° | 5302.9 | 5289.7 | 5258.7 | 5252.0 | 5320.6 | 5511.0 | 5929.3 | 6048.8 | 6438.3 | 6827.9 | 6360.9 |
| 25° | 5440.2 | 5411.4 | 5367.1 | 5300.7 | 5274.2 | 5369.3 | 5727.9 | 5851.8 | 6310.0 | 6830.1 | 6296.7 |
| 27.5° | 5650.4 | 5619.4 | 5564.1 | 5475.6 | 5371.5 | 5331.7 | 5590.7 | 5708.0 | 6219.2 | 6881.0 | 6265.7 |
| 30° | 5918.2 | 5893.9 | 5840.8 | 5734.5 | 5595.1 | 5431.3 | 5561.9 | 5659.3 | 6175.0 | 6985.0 | 6279.0 |
| 32.5° | 6234.7 | 6217.0 | 6172.7 | 6075.4 | 5916.0 | 5665.9 | 5659.3 | 5734.5 | 6210.4 | 7135.5 | 6329.9 |
| 35° | 6540.1 | 6546.8 | 6549.0 | 6495.9 | 6325.5 | 6022.2 | 5927.1 | 5953.6 | 6356.4 | 7361.2 | 6445.0 |
| 37.5° | 6869.9 | 6854.4 | 6934.1 | 6971.7 | 6807.9 | 6484.8 | 6340.9 | 6343.2 | 6635.3 | 7695.4 | 6661.9 |
| 40° | 7120.0 | 7124.4 | 7297.1 | 7452.0 | 7383.4 | 7071.3 | 6865.5 | 6863.3 | 7064.7 | 8153.6 | 7011.6 |
| 42.5° | 7354.6 | 7383.4 | 7637.9 | 7903.5 | 7998.7 | 7722.0 | 7573.7 | 7518.4 | 7666.7 | 8773.3 | 7536.1 |
| 45° | 7604.7 | 7646.8 | 8003.1 | 8381.6 | 8631.7 | 8467.9 | 8350.6 | 8372.7 | 8390.4 | 9494.8 | 8242.1 |
| 47.5° | 7896.9 | 7923.4 | 8363.8 | 8897.2 | 9364.2 | 9322.2 | 9328.8 | 9302.3 | 9293.4 | 10404.5 | 9176.1 |
| 50° | 8251.0 | 8312.9 | 8819.8 | 9457.2 | 10094.6 | 10373.5 | 10466.4 | 10477.5 | 10333.6 | 11396.0 | 10143.3 |
| 52.5° | 9003.5 | 9078.7 | 9512.5 | 10070.3 | 10891.4 | 11477.9 | 11856.3 | 11781.1 | 11559.8 | 12356.5 | 11203.4 |
| 55° | 9891.0 | 9948.5 | 10366.8 | 10944.5 | 11865.2 | 12688.5 | 13587.1 | 13556.1 | 13013.9 | 13368.0 | 12075.5 |
| 57.5° | 9975.1 | 10039.3 | 10687.8 | 11573.1 | 13115.7 | 14184.7 | 15129.7 | 15229.3 | 14434.8 | 14085.1 | 12854.5 |
| 60° | 9030.0 | 9160.6 | 10045.9 | 11236.6 | 13593.7 | 16196.5 | 16820.7 | 16840.6 | 15477.2 | 14813.2 | 13806.2 |
| 62.5° | 7237.3 | 7299.3 | 8191.2 | 9744.9 | 12856.7 | 17369.5 | 19403.5 | 18983.0 | 16816.2 | 15939.8 | 15313.4 |
| 65° | 3793.5 | 4045.8 | 4822.7 | 6542.3 | 10426.6 | 16960.1 | 22510.9 | 22395.8 | 19224.2 | 17553.2 | 16486.5 |
| 67.5° | 2602.8 | 2600.6 | 2784.3 | 3410.6 | 6217.0 | 14603.0 | 24035.8 | 25301.8 | 22008.5 | 18106.5 | 15636.6 |
| 70° | 1980.9 | 1987.5 | 2151.3 | 2558.5 | 3220.3 | 9720.6 | 22362.6 | 24527.2 | 22526.4 | 16440.0 | 12646.5 |
| 72.5° | 1314.7 | 1327.9 | 1600.2 | 2067.2 | 2571.8 | 4765.1 | 17378.4 | 19624.8 | 18954.2 | 13204.2 | 8901.7 |
| 75° | 785.7 | 796.8 | 991.5 | 1502.8 | 2286.3 | 2667.0 | 11041.9 | 13567.2 | 13047.1 | 9100.9 | 4771.8 |
| 77.5° | 323.1 | 332.0 | 509.0 | 936.2 | 1673.2 | 2071.6 | 6106.3 | 8877.3 | 7815.0 | 3618.7 | 1303.6 |
| 80° | 135.0 | 139.4 | 245.7 | 655.1 | 1206.2 | 1299.2 | 2828.5 | 4172.0 | 3202.6 | 779.1 | 398.4 |
| 82.5° | 48.7 | 50.9 | 90.7 | 360.8 | 750.3 | 978.3 | 1427.5 | 1648.9 | 903.0 | 254.5 | 214.7 |
| 85° | 2.2 | 2.2 | 22.1 | 121.7 | 285.5 | 276.7 | 816.7 | 790.1 | 298.8 | 106.2 | 128.4 |
| 87.5° | 0.0 | 0.0 | 2.2 | 2.2 | 4.4 | 11.1 | 77.5 | 137.2 | 64.2 | 26.6 | 55.3 |
| 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: P638365

CATALOG NUMBER: GWS-SA4E-760-U-SL3-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 | 7213.0 |
| 2.5° | 7166.5 | 7049.2 | 6920.8 | 6801.3 | 6611.0 | 6498.1 | 6358.6 | 6296.7 | 6208.1 | 6186.0 | 6199.3 |
| 5° | 7020.4 | 6819.0 | 6511.4 | 6232.5 | 5871.7 | 5581.8 | 5289.7 | 5165.7 | 5006.4 | 4900.1 | 4855.9 |
| 7.5° | 6814.6 | 6551.2 | 6070.9 | 5564.1 | 5068.3 | 4539.4 | 4136.6 | 3871.0 | 3629.7 | 3496.9 | 3470.4 |
| 10° | 6606.5 | 6263.5 | 5575.2 | 4849.2 | 4081.2 | 3448.2 | 2903.8 | 2501.0 | 2173.4 | 2025.1 | 1910.0 |
| 12.5° | 6391.8 | 5964.7 | 5070.5 | 4123.3 | 3231.3 | 2368.2 | 1695.3 | 1303.6 | 1069.0 | 976.0 | 991.5 |
| 15° | 6194.9 | 5677.0 | 4570.3 | 3397.3 | 2275.2 | 1429.8 | 936.2 | 790.1 | 734.8 | 717.1 | 714.9 |
| 17.5° | 6006.7 | 5404.7 | 4072.4 | 2691.3 | 1500.6 | 876.4 | 717.1 | 681.7 | 666.2 | 657.3 | 657.3 |
| 20° | 5836.3 | 5143.6 | 3585.5 | 2027.3 | 969.4 | 695.0 | 648.5 | 630.8 | 617.5 | 610.9 | 610.9 |
| 22.5° | 5677.0 | 4891.3 | 3109.6 | 1434.2 | 714.9 | 624.1 | 595.4 | 577.7 | 562.2 | 553.3 | 553.3 |
| 25° | 5533.1 | 4663.3 | 2655.9 | 987.1 | 615.3 | 571.0 | 540.0 | 520.1 | 493.6 | 478.1 | 478.1 |
| 27.5° | 5429.1 | 4459.7 | 2219.9 | 719.3 | 555.5 | 513.5 | 478.1 | 451.5 | 422.7 | 405.0 | 400.6 |
| 30° | 5367.1 | 4287.1 | 1779.4 | 590.9 | 500.2 | 458.1 | 418.3 | 385.1 | 351.9 | 334.2 | 332.0 |
| 32.5° | 5331.7 | 4127.7 | 1376.6 | 515.7 | 453.7 | 405.0 | 360.8 | 325.3 | 292.1 | 272.2 | 270.0 |
| 35° | 5345.0 | 4003.8 | 1031.4 | 464.8 | 409.5 | 358.5 | 309.9 | 274.4 | 245.7 | 228.0 | 223.5 |
| 37.5° | 5460.1 | 3948.4 | 774.6 | 424.9 | 371.8 | 318.7 | 267.8 | 234.6 | 208.0 | 194.8 | 192.6 |
| 40° | 5683.6 | 3959.5 | 608.6 | 394.0 | 340.8 | 278.9 | 230.2 | 199.2 | 179.3 | 168.2 | 166.0 |
| 42.5° | 6031.1 | 4052.4 | 502.4 | 367.4 | 307.6 | 243.5 | 199.2 | 174.8 | 154.9 | 143.9 | 141.6 |
| 45° | 6549.0 | 4245.0 | 438.2 | 336.4 | 272.2 | 210.3 | 172.6 | 150.5 | 132.8 | 119.5 | 117.3 |
| 47.5° | 7299.3 | 4579.2 | 396.2 | 307.6 | 241.2 | 181.5 | 148.3 | 126.2 | 110.7 | 99.6 | 97.4 |
| 50° | 8098.3 | 4979.8 | 360.8 | 278.9 | 214.7 | 157.1 | 126.2 | 104.0 | 90.7 | 79.7 | 77.5 |
| 52.5° | 8950.4 | 5411.4 | 334.2 | 252.3 | 190.3 | 135.0 | 106.2 | 86.3 | 73.0 | 62.0 | 59.8 |
| 55° | 9769.3 | 5845.2 | 303.2 | 234.6 | 161.6 | 115.1 | 88.5 | 70.8 | 57.5 | 48.7 | 48.7 |
| 57.5° | 10566.0 | 6243.6 | 270.0 | 205.8 | 132.8 | 97.4 | 73.0 | 57.5 | 46.5 | 39.8 | 37.6 |
| 60° | 11517.7 | 6794.7 | 232.4 | 174.8 | 110.7 | 81.9 | 59.8 | 46.5 | 37.6 | 31.0 | 31.0 |
| 62.5° | 12932.0 | 7367.9 | 199.2 | 146.1 | 93.0 | 68.6 | 48.7 | 37.6 | 31.0 | 26.6 | 24.3 |
| 65° | 13394.6 | 7058.0 | 168.2 | 119.5 | 75.3 | 55.3 | 39.8 | 33.2 | 26.6 | 24.3 | 22.1 |
| 67.5° | 12159.6 | 5785.4 | 139.4 | 97.4 | 62.0 | 46.5 | 35.4 | 28.8 | 24.3 | 22.1 | 19.9 |
| 70° | 9488.2 | 4105.6 | 108.4 | 73.0 | 50.9 | 37.6 | 31.0 | 26.6 | 22.1 | 19.9 | 19.9 |
| 72.5° | 6453.8 | 2427.9 | 86.3 | 55.3 | 42.1 | 33.2 | 26.6 | 24.3 | 22.1 | 19.9 | 17.7 |
| 75° | 3178.2 | 863.2 | 66.4 | 42.1 | 33.2 | 28.8 | 24.3 | 22.1 | 19.9 | 17.7 | 17.7 |
| 77.5° | 856.5 | 239.0 | 50.9 | 33.2 | 26.6 | 22.1 | 22.1 | 22.1 | 19.9 | 15.5 | 15.5 |
| 80° | 289.9 | 99.6 | 37.6 | 24.3 | 22.1 | 17.7 | 15.5 | 19.9 | 17.7 | 15.5 | 13.3 |
| 82.5° | 159.4 | 48.7 | 26.6 | 19.9 | 15.5 | 13.3 | 13.3 | 13.3 | 13.3 | 11.1 | 11.1 |
| 85° | 101.8 | 26.6 | 17.7 | 15.5 | 15.5 | 11.1 | 8.9 | 8.9 | 6.6 | 6.6 | 6.6 |
| 87.5° | 46.5 | 15.5 | 15.5 | 13.3 | 13.3 | 11.1 | 6.6 | 4.4 | 2.2 | 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 |

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



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

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)