

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: P641303

Luminaire Tested: GWS-SA5F-750-U-T3-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P641303
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-26)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5F-750-U-T3-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS WITH HOUSE SIDE SHIELD
Light Source: (80) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 31344.3 lumens
Efficiency: N/A
Efficacy: 101.0 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type III - Short
BUG Rating: B3 - U0 - G4

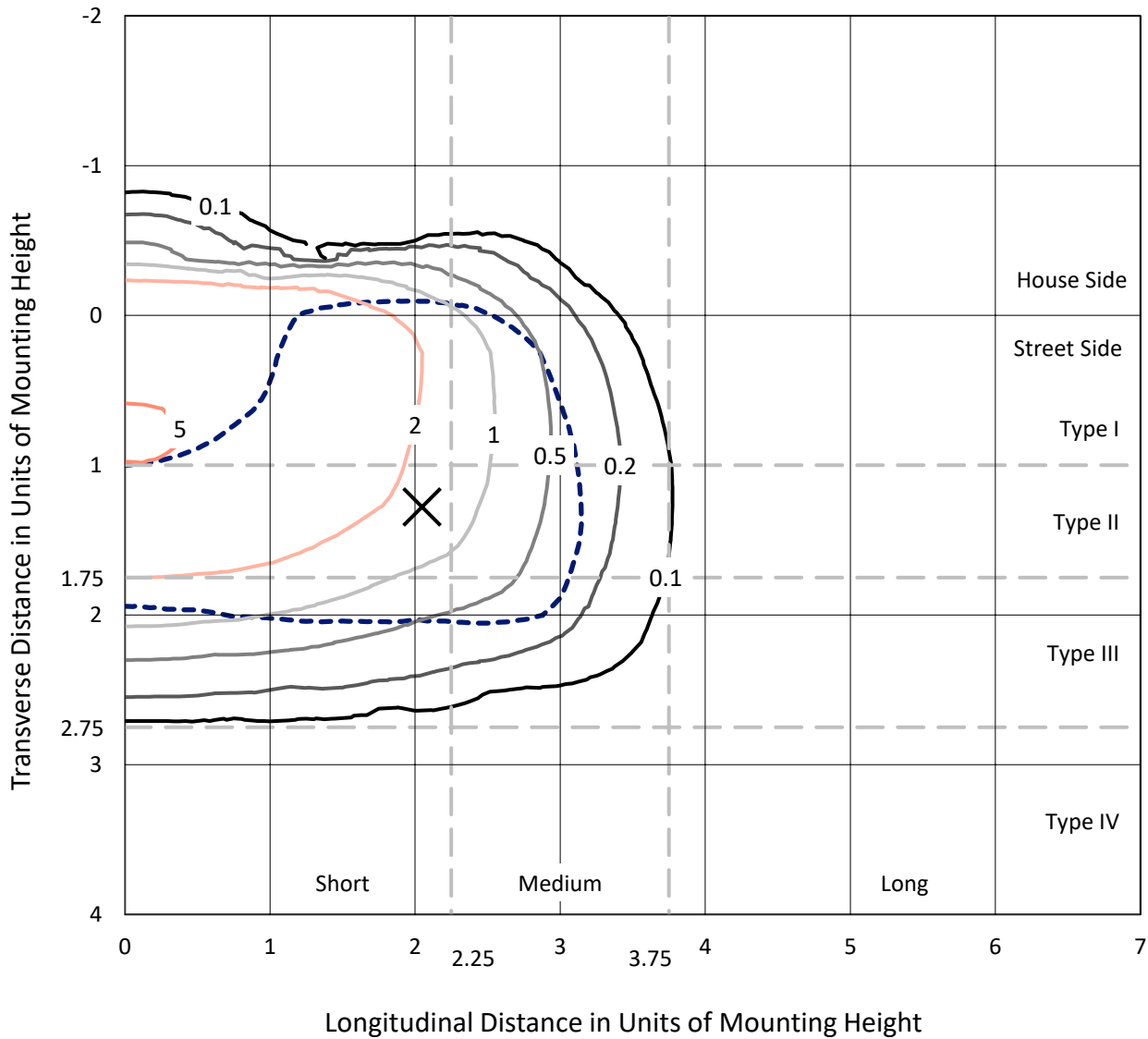
Input Watts (W): 310.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P641303
 CATALOG NUMBER: GWS-SA5F-750-U-T3-W-HSS

Iso-Footcandle Lines of Horizontal Illumination

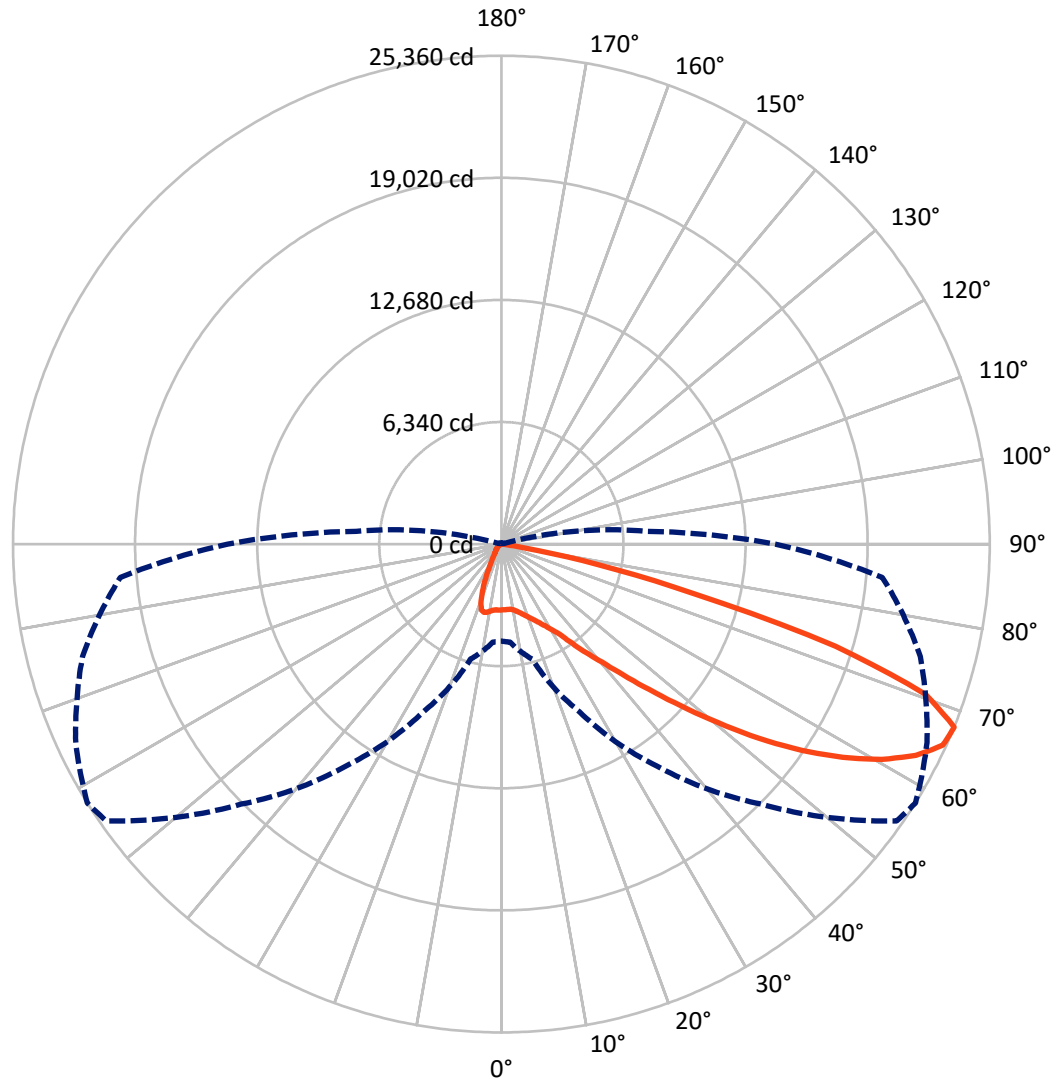
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 5.3 fc
 Type III - Short - N/A

REPORT NUMBER: P641303
CATALOG NUMBER: GWS-SA5F-750-U-T3-W-HSS

Luminous Intensity Polar Plot



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

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CATALOG NUMBER: GWS-SA5F-750-U-T3-W-HSS

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3419.6 | 0.0 | 3419.6 |
| | % Fixture | 10.9 | 0.0 | 10.9 |
| Street Side | Lumens | 27924.7 | 0.0 | 27924.7 |
| | % Fixture | 89.1 | 0.0 | 89.1 |
| Total | Lumens | 31344.3 | 0.0 | 31344.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 320.8 | 1.0 |
| 10°-20° | 900.9 | 2.9 |
| 20°-30° | 1572.5 | 5.0 |
| 30°-40° | 2808.3 | 9.0 |
| 40°-50° | 5133.0 | 16.4 |
| 50°-60° | 8536.7 | 27.2 |
| 60°-70° | 9272.3 | 29.6 |
| 70°-80° | 2722.4 | 8.7 |
| 80°-90° | 77.5 | 0.2 |
| 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° | 31344.3 | 100.0 |
| 0°-180° | 31344.3 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P641303

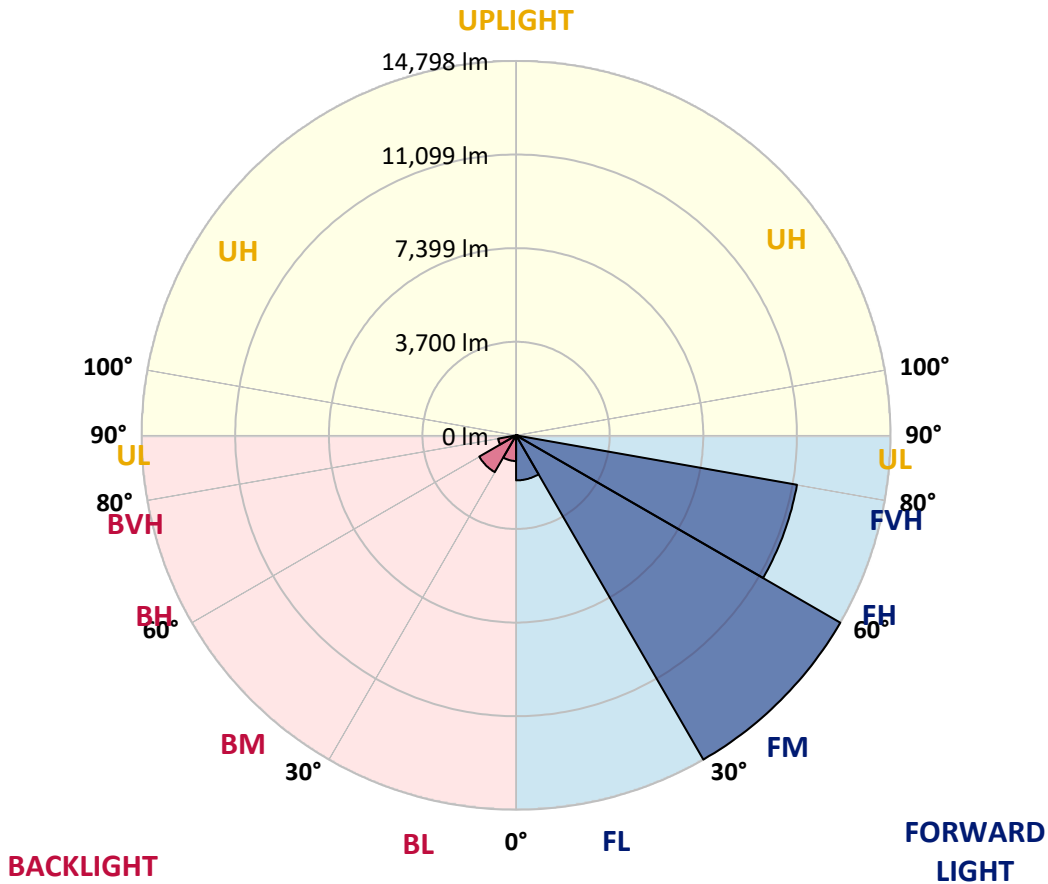
CATALOG NUMBER: GWS-SA5F-750-U-T3-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 1779.9 | 5.7 | | | |
| FM (30°-60°) | 14798.3 | 47.2 | | | |
| FH (60°-80°) | 11272.8 | 36.0 | | | G4/12000 |
| FVH (80°-90°) | 73.7 | 0.2 | | | G1/100 |
| BL (0°-30°) | 1014.3 | 3.2 | B3/2500 | | |
| BM (30°-60°) | 1679.6 | 5.4 | B2/2500 | | |
| BH (60°-80°) | 721.9 | 2.3 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 3.8 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 |
| 2.5° | 3351.3 | 3345.2 | 3345.2 | 3369.7 | 3372.7 | 3385.0 | 3412.5 | 3415.6 | 3430.9 | 3424.8 | 3403.3 |
| 5° | 3176.9 | 3179.9 | 3198.3 | 3241.1 | 3277.9 | 3323.8 | 3391.1 | 3406.4 | 3440.1 | 3458.4 | 3446.2 |
| 7.5° | 3014.7 | 3017.7 | 3045.3 | 3112.6 | 3183.0 | 3274.8 | 3385.0 | 3415.6 | 3482.9 | 3531.9 | 3535.0 |
| 10° | 2953.4 | 2950.4 | 2977.9 | 3054.4 | 3146.3 | 3274.8 | 3434.0 | 3473.7 | 3574.7 | 3660.4 | 3675.7 |
| 12.5° | 2971.8 | 2968.7 | 2996.3 | 3066.7 | 3167.7 | 3329.9 | 3519.7 | 3574.7 | 3703.3 | 3834.9 | 3862.4 |
| 15° | 3045.3 | 3042.2 | 3060.6 | 3118.7 | 3228.9 | 3397.2 | 3629.8 | 3712.5 | 3874.7 | 4033.8 | 4076.7 |
| 17.5° | 3265.6 | 3250.3 | 3232.0 | 3238.1 | 3302.4 | 3476.8 | 3770.6 | 3871.6 | 4073.6 | 4263.4 | 4300.1 |
| 20° | 3657.4 | 3617.6 | 3568.6 | 3504.3 | 3473.7 | 3593.1 | 3932.8 | 4049.1 | 4294.0 | 4511.3 | 4517.4 |
| 22.5° | 4248.1 | 4232.8 | 4119.5 | 3932.8 | 3801.2 | 3804.3 | 4122.6 | 4257.2 | 4557.2 | 4795.9 | 4762.2 |
| 25° | 5071.4 | 5062.2 | 4887.7 | 4581.7 | 4238.9 | 4122.6 | 4364.4 | 4502.1 | 4869.4 | 5123.4 | 5016.3 |
| 27.5° | 6093.6 | 6029.3 | 5824.3 | 5411.1 | 4900.0 | 4535.8 | 4670.4 | 4792.8 | 5199.9 | 5438.6 | 5236.6 |
| 30° | 6984.2 | 6987.3 | 6794.5 | 6362.9 | 5787.5 | 5157.1 | 5043.8 | 5150.9 | 5502.9 | 5753.9 | 5509.0 |
| 32.5° | 7841.2 | 7868.7 | 7657.5 | 7268.8 | 6638.4 | 5968.1 | 5579.4 | 5597.8 | 5891.6 | 6164.0 | 5867.1 |
| 35° | 8636.9 | 8658.3 | 8511.4 | 8180.9 | 7593.3 | 6815.9 | 6326.2 | 6317.0 | 6476.2 | 6754.7 | 6366.0 |
| 37.5° | 9527.5 | 9549.0 | 9405.1 | 9108.2 | 8557.3 | 7786.1 | 7174.0 | 7161.7 | 7226.0 | 7452.5 | 7008.7 |
| 40° | 10476.3 | 10516.1 | 10357.0 | 10106.0 | 9579.6 | 8927.7 | 8159.5 | 8049.3 | 7985.0 | 8251.3 | 7841.2 |
| 42.5° | 11437.3 | 11498.5 | 11443.5 | 11192.5 | 10742.6 | 10203.9 | 9438.8 | 9267.4 | 9129.7 | 9463.3 | 9028.7 |
| 45° | 12631.0 | 12704.4 | 12679.9 | 12487.1 | 12138.2 | 11700.5 | 10978.3 | 10779.3 | 10715.0 | 11024.2 | 10506.9 |
| 47.5° | 13778.7 | 13858.2 | 13947.0 | 13904.2 | 13656.2 | 13454.3 | 12652.4 | 12539.1 | 12520.8 | 12851.3 | 12049.5 |
| 50° | 14632.6 | 14706.0 | 15045.7 | 15290.6 | 15458.9 | 15416.1 | 14721.3 | 14553.0 | 14525.4 | 14736.6 | 13677.7 |
| 52.5° | 15244.7 | 15315.1 | 15783.3 | 16548.5 | 17166.7 | 17503.4 | 16802.5 | 16765.8 | 16615.8 | 16542.4 | 15201.8 |
| 55° | 15719.1 | 15817.0 | 16309.8 | 17466.7 | 18712.3 | 19459.1 | 19021.4 | 18889.8 | 18504.2 | 18081.8 | 16615.8 |
| 57.5° | 15813.9 | 15853.7 | 16548.5 | 18109.4 | 19912.0 | 21121.0 | 21121.0 | 20891.4 | 20147.7 | 19563.1 | 18250.2 |
| 60° | 14963.1 | 15085.5 | 16025.1 | 18057.3 | 20426.2 | 22207.5 | 22862.4 | 22703.3 | 21699.4 | 20980.2 | 19823.3 |
| 62.5° | 13074.7 | 13212.5 | 14357.1 | 16811.7 | 19912.0 | 22430.9 | 24181.5 | 24157.1 | 23024.6 | 22152.4 | 21127.1 |
| 65° | 10026.4 | 10127.4 | 11125.2 | 14063.3 | 17739.0 | 21570.9 | 25124.2 | 25191.5 | 24071.4 | 22926.7 | 21577.0 |
| 67.5° | 5037.7 | 5108.1 | 6185.4 | 9607.1 | 14060.2 | 19094.9 | 25059.9 | 25359.9 | 24389.7 | 22516.6 | 19860.0 |
| 70° | 1759.8 | 1830.2 | 2338.3 | 4122.6 | 8557.3 | 14580.5 | 22893.0 | 23382.7 | 22519.6 | 19220.4 | 14650.9 |
| 72.5° | 602.9 | 636.6 | 970.2 | 1530.3 | 3329.9 | 8643.0 | 17408.5 | 18146.1 | 16600.5 | 12903.3 | 8419.6 |
| 75° | 342.8 | 364.2 | 520.3 | 829.4 | 1395.6 | 2843.3 | 9876.4 | 10329.4 | 9677.5 | 7033.2 | 3464.6 |
| 77.5° | 232.6 | 251.0 | 324.4 | 471.3 | 771.3 | 915.1 | 4027.7 | 5071.4 | 4422.5 | 2295.4 | 884.5 |
| 80° | 137.7 | 150.0 | 198.9 | 278.5 | 394.8 | 355.0 | 863.1 | 1147.7 | 1478.3 | 685.6 | 266.3 |
| 82.5° | 64.3 | 73.5 | 128.5 | 183.6 | 198.9 | 150.0 | 254.0 | 309.1 | 416.2 | 336.7 | 110.2 |
| 85° | 0.0 | 0.0 | 42.8 | 76.5 | 73.5 | 42.8 | 70.4 | 76.5 | 113.2 | 168.3 | 42.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 6.1 | 9.2 | 18.4 | 33.7 | 18.4 |
| 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: P641303

CATALOG NUMBER: GWS-SA5F-750-U-T3-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 | 3415.6 |
| 2.5° | 3427.8 | 3406.4 | 3430.9 | 3418.7 | 3430.9 | 3427.8 | 3403.3 | 3388.0 | 3388.0 | 3360.5 | 3351.3 |
| 5° | 3470.7 | 3449.3 | 3455.4 | 3427.8 | 3421.7 | 3406.4 | 3375.8 | 3363.6 | 3363.6 | 3336.0 | 3326.8 |
| 7.5° | 3565.6 | 3531.9 | 3525.8 | 3470.7 | 3446.2 | 3403.3 | 3348.3 | 3326.8 | 3323.8 | 3296.2 | 3287.0 |
| 10° | 3715.5 | 3675.7 | 3648.2 | 3577.8 | 3507.4 | 3421.7 | 3305.4 | 3207.5 | 3152.4 | 3078.9 | 3072.8 |
| 12.5° | 3899.2 | 3850.2 | 3807.3 | 3700.2 | 3583.9 | 3391.1 | 3048.3 | 2690.2 | 2469.9 | 2295.4 | 2307.7 |
| 15° | 4104.2 | 4058.3 | 3991.0 | 3828.8 | 3590.0 | 3088.1 | 2371.9 | 1821.0 | 1551.7 | 1407.9 | 1401.7 |
| 17.5° | 4327.6 | 4260.3 | 4150.1 | 3929.8 | 3397.2 | 2359.7 | 1542.5 | 1089.6 | 948.8 | 899.8 | 887.6 |
| 20° | 4535.8 | 4453.1 | 4315.4 | 3951.2 | 2840.2 | 1597.6 | 964.1 | 844.7 | 820.2 | 804.9 | 804.9 |
| 22.5° | 4756.1 | 4652.1 | 4447.0 | 3785.9 | 2111.8 | 1022.2 | 820.2 | 792.7 | 774.3 | 752.9 | 749.8 |
| 25° | 4979.5 | 4844.9 | 4566.4 | 3354.4 | 1383.4 | 804.9 | 768.2 | 737.6 | 703.9 | 670.3 | 661.1 |
| 27.5° | 5169.3 | 4994.8 | 4658.2 | 2711.7 | 887.6 | 725.4 | 700.9 | 648.8 | 602.9 | 566.2 | 560.1 |
| 30° | 5395.8 | 5172.4 | 4698.0 | 1983.2 | 697.8 | 639.7 | 602.9 | 547.8 | 492.8 | 456.0 | 443.8 |
| 32.5° | 5698.8 | 5453.9 | 4636.8 | 1291.6 | 618.2 | 563.1 | 505.0 | 440.7 | 385.6 | 345.8 | 339.7 |
| 35° | 6170.1 | 5879.3 | 4355.2 | 823.3 | 560.1 | 486.6 | 416.2 | 348.9 | 303.0 | 272.4 | 266.3 |
| 37.5° | 6745.5 | 6476.2 | 3893.0 | 618.2 | 501.9 | 422.4 | 339.7 | 275.5 | 241.8 | 220.4 | 214.2 |
| 40° | 7599.4 | 7222.9 | 3320.7 | 541.7 | 443.8 | 358.1 | 278.5 | 226.5 | 202.0 | 183.6 | 177.5 |
| 42.5° | 8707.3 | 8104.4 | 2662.7 | 492.8 | 388.7 | 299.9 | 226.5 | 186.7 | 165.3 | 153.0 | 150.0 |
| 45° | 10001.9 | 8964.4 | 1967.9 | 443.8 | 336.7 | 247.9 | 186.7 | 153.0 | 137.7 | 128.5 | 125.5 |
| 47.5° | 11327.2 | 9717.3 | 1358.9 | 391.8 | 287.7 | 205.1 | 156.1 | 131.6 | 119.4 | 107.1 | 104.1 |
| 50° | 12741.1 | 10353.9 | 927.4 | 339.7 | 244.8 | 168.3 | 134.7 | 119.4 | 104.1 | 94.9 | 91.8 |
| 52.5° | 13778.7 | 10589.6 | 645.8 | 293.8 | 208.1 | 143.8 | 119.4 | 107.1 | 94.9 | 82.6 | 79.6 |
| 55° | 14736.6 | 10583.4 | 489.7 | 247.9 | 177.5 | 125.5 | 107.1 | 94.9 | 82.6 | 73.5 | 70.4 |
| 57.5° | 15691.5 | 10500.8 | 385.6 | 211.2 | 153.0 | 113.2 | 94.9 | 82.6 | 76.5 | 64.3 | 61.2 |
| 60° | 16309.8 | 10188.6 | 299.9 | 177.5 | 131.6 | 97.9 | 82.6 | 73.5 | 64.3 | 55.1 | 52.0 |
| 62.5° | 16637.2 | 9754.0 | 229.5 | 140.8 | 107.1 | 85.7 | 73.5 | 64.3 | 55.1 | 45.9 | 42.8 |
| 65° | 16193.5 | 8982.8 | 180.6 | 110.2 | 82.6 | 73.5 | 61.2 | 52.0 | 42.8 | 33.7 | 30.6 |
| 67.5° | 14225.5 | 7574.9 | 140.8 | 88.8 | 64.3 | 55.1 | 52.0 | 42.8 | 30.6 | 24.5 | 21.4 |
| 70° | 10054.0 | 5187.7 | 110.2 | 67.3 | 49.0 | 42.8 | 39.8 | 33.7 | 24.5 | 18.4 | 15.3 |
| 72.5° | 5518.2 | 2616.8 | 79.6 | 49.0 | 36.7 | 33.7 | 30.6 | 27.5 | 21.4 | 15.3 | 15.3 |
| 75° | 2124.0 | 719.2 | 58.2 | 33.7 | 24.5 | 24.5 | 21.4 | 21.4 | 18.4 | 12.2 | 12.2 |
| 77.5° | 554.0 | 214.2 | 36.7 | 21.4 | 15.3 | 15.3 | 15.3 | 12.2 | 12.2 | 9.2 | 9.2 |
| 80° | 177.5 | 70.4 | 21.4 | 15.3 | 12.2 | 9.2 | 9.2 | 6.1 | 9.2 | 6.1 | 6.1 |
| 82.5° | 58.2 | 24.5 | 12.2 | 12.2 | 9.2 | 6.1 | 6.1 | 3.1 | 3.1 | 0.0 | 0.0 |
| 85° | 21.4 | 12.2 | 9.2 | 6.1 | 6.1 | 6.1 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 12.2 | 6.1 | 6.1 | 6.1 | 6.1 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): 4884
 CIE u': 0.2101
 CIE v': 0.4904
 Duv: 0.0037
 CIE x: 0.3493
 CIE y: 0.3624
 CIE z: 0.2884
 Peak Wavelength (nm): 444
 Dominant Wavelength (nm): 571
 Purity: 13.7
 Rf: 74.9
 Rg: 96.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 | | |
| R1: | 70.5 | R9: | -28.4 |
| R2: | 77.7 | R10: | 48.6 |
| R3: | 84.6 | R11: | 73.2 |
| R4: | 74.7 | R12: | 50.7 |
| R5: | 71.9 | R13: | 71.2 |
| R6: | 70.7 | R14: | 91.4 |
| R7: | 81.2 | | |
| R8: | 56.9 | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-R4

| 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 5000K 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 CIE $R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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TM-30-18

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

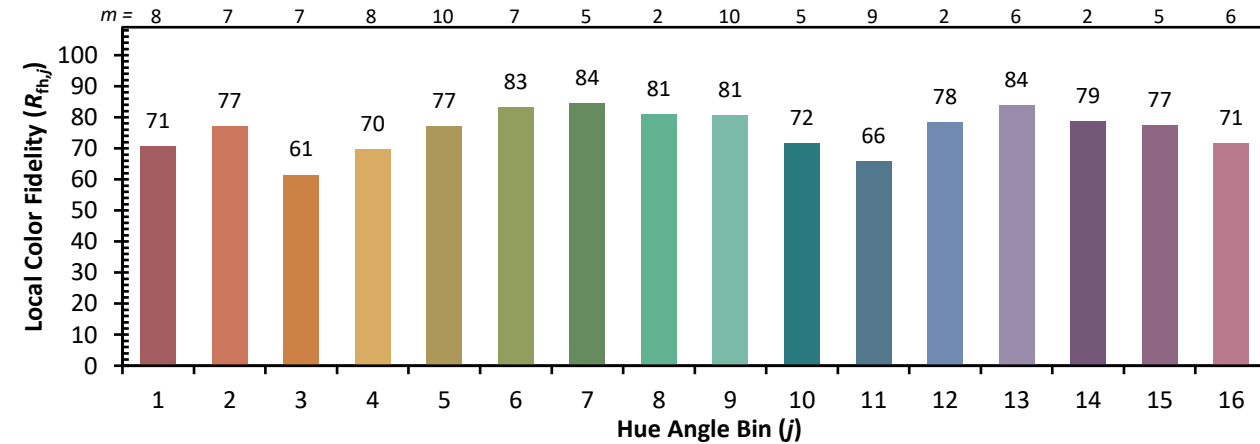
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)