

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: P639127

Luminaire Tested: GWS-SA5B-730-U-RW-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P639127
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-51)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5B-730-U-RW-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (80) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14253.3 lumens
Efficiency: N/A
Efficacy: 123.2 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G1

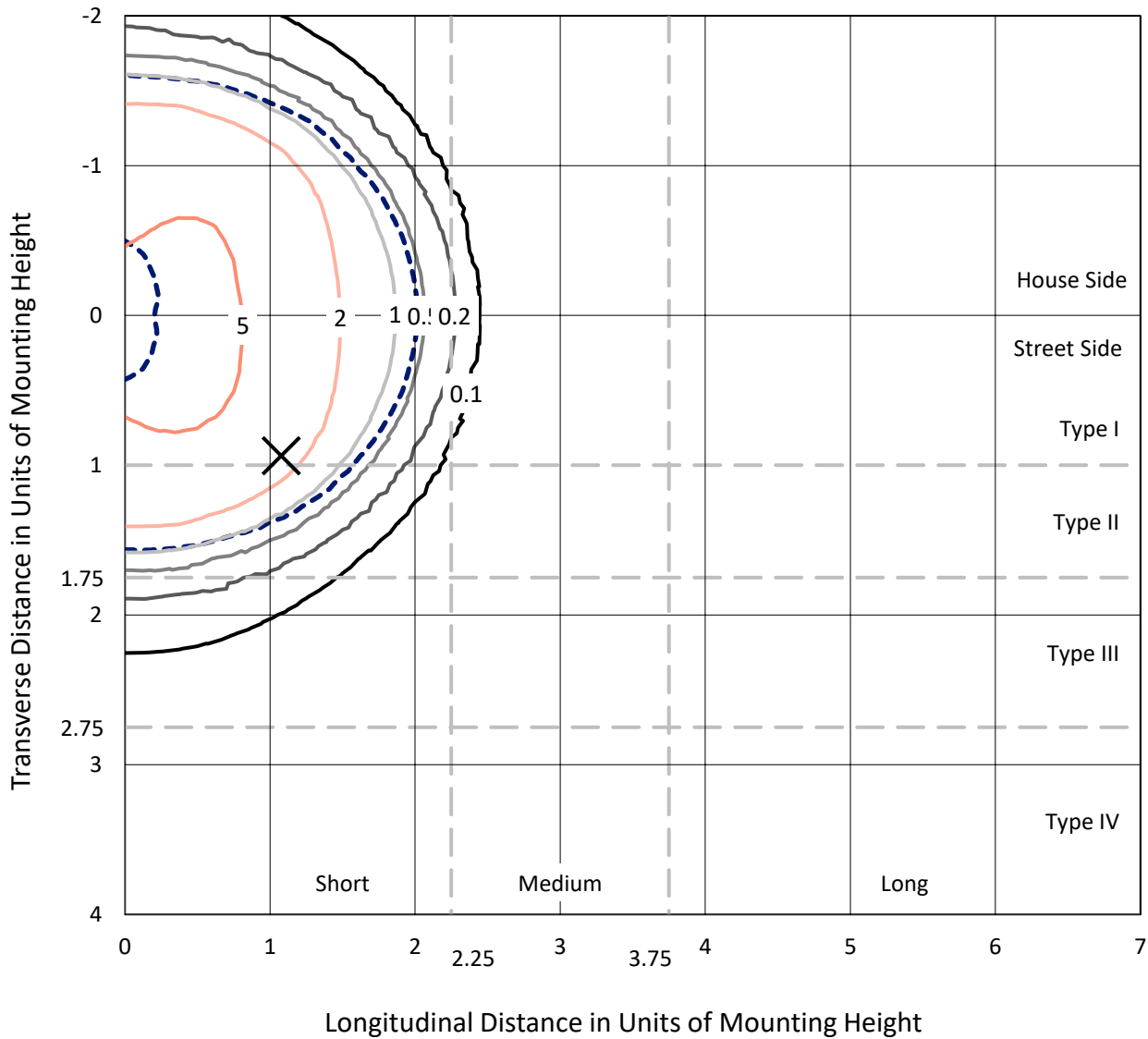
Input Watts (W): 115.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

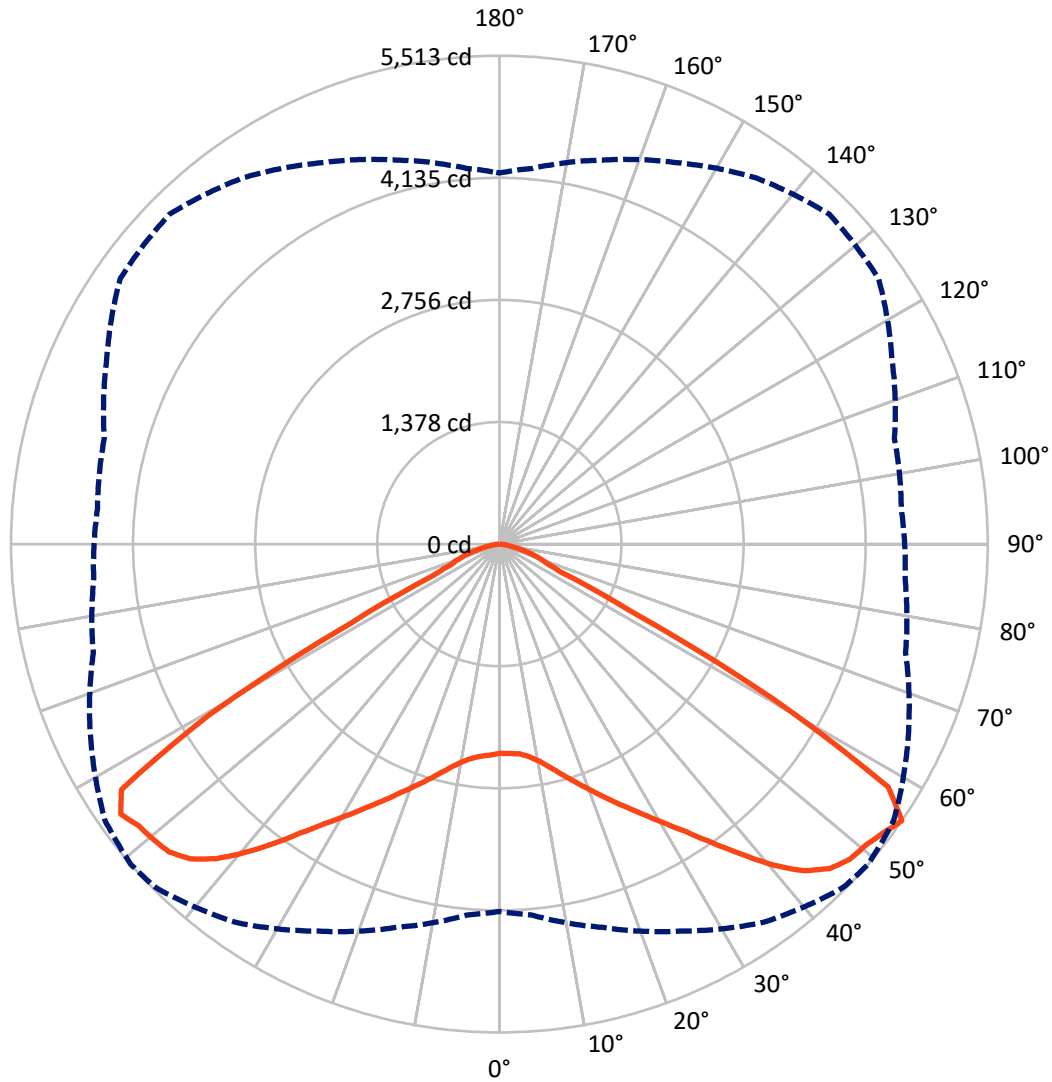
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.6 fc
 Type V - Short - N/A

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CATALOG NUMBER: GWS-SA5B-730-U-RW-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 49-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 7056.7 | 0.0 | 7056.7 |
| | % Fixture | 49.5 | 0.0 | 49.5 |
| Street Side | Lumens | 7196.6 | 0.0 | 7196.6 |
| | % Fixture | 50.5 | 0.0 | 50.5 |
| Total | Lumens | 14253.3 | 0.0 | 14253.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 230.3 | 1.6 |
| 10°-20° | 759.7 | 5.3 |
| 20°-30° | 1447.1 | 10.2 |
| 30°-40° | 2453.1 | 17.2 |
| 40°-50° | 3691.7 | 25.9 |
| 50°-60° | 4040.9 | 28.4 |
| 60°-70° | 1277.8 | 9.0 |
| 70°-80° | 306.7 | 2.2 |
| 80°-90° | 46.0 | 0.3 |
| 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° | 14253.3 | 100.0 |
| 0°-180° | 14253.3 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P639127

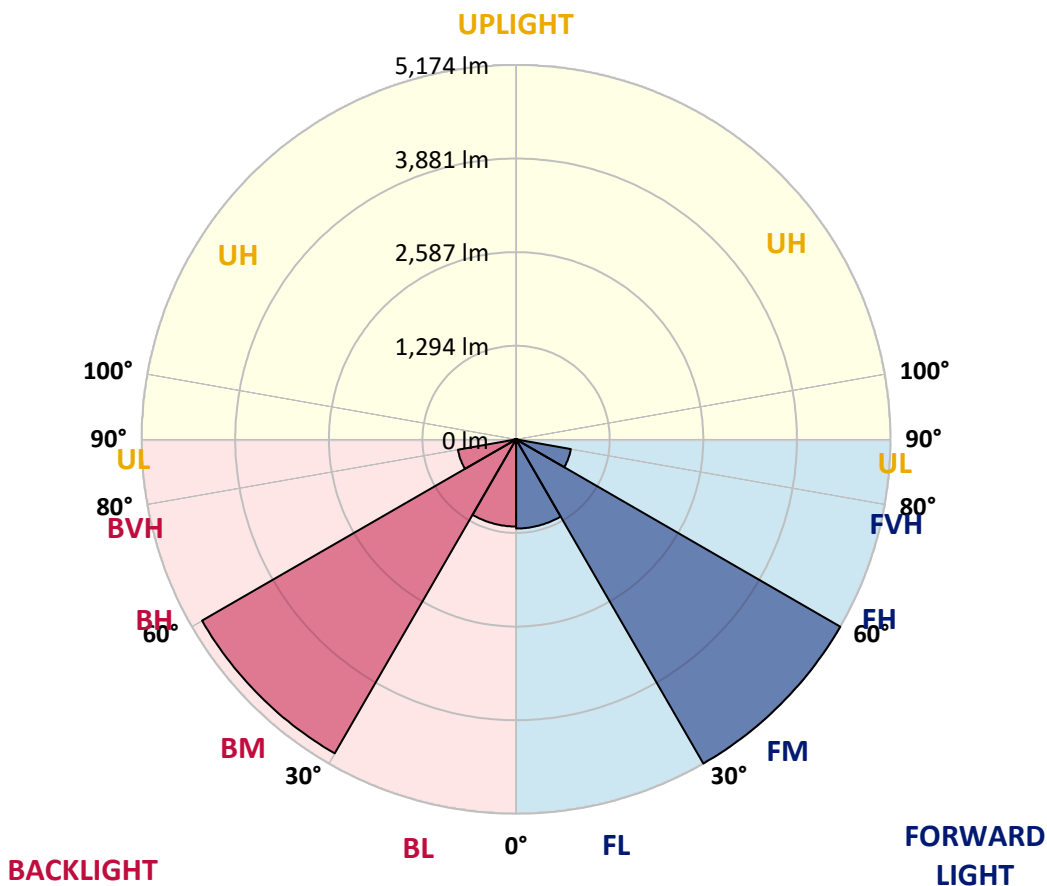
CATALOG NUMBER: GWS-SA5B-730-U-RW-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1232.3 | 8.6 | | | |
| FM (30°-60°) | 5174.3 | 36.3 | | | |
| FH (60°-80°) | 768.6 | 5.4 | | | G1/1800 |
| FVH (80°-90°) | 21.3 | 0.1 | | | G1/100 |
| BL (0°-30°) | 1204.8 | 8.5 | B3/2500 | | |
| BM (30°-60°) | 5011.4 | 35.2 | B4/8500 | | |
| BH (60°-80°) | 815.8 | 5.7 | B2/1000 | | G1/1800 |
| BVH (80°-90°) | 24.7 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B4-U0-G1

Type V Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 49° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 |
| 2.5° | 2326.4 | 2328.7 | 2333.3 | 2341.4 | 2349.6 | 2361.1 | 2365.8 | 2371.6 | 2370.4 | 2377.4 | 2377.4 |
| 5° | 2314.8 | 2318.3 | 2325.2 | 2336.8 | 2350.7 | 2372.7 | 2378.5 | 2392.4 | 2406.4 | 2423.7 | 2429.5 |
| 7.5° | 2328.7 | 2333.3 | 2341.4 | 2360.0 | 2380.9 | 2409.8 | 2421.4 | 2444.6 | 2471.3 | 2502.6 | 2515.3 |
| 10° | 2355.3 | 2361.1 | 2375.1 | 2405.2 | 2438.8 | 2482.9 | 2493.3 | 2522.3 | 2565.2 | 2608.0 | 2633.5 |
| 12.5° | 2385.5 | 2394.8 | 2420.3 | 2467.8 | 2517.6 | 2575.6 | 2591.8 | 2627.7 | 2674.1 | 2729.7 | 2764.5 |
| 15° | 2420.3 | 2428.4 | 2467.8 | 2535.0 | 2612.7 | 2689.2 | 2707.7 | 2742.5 | 2794.7 | 2849.1 | 2897.8 |
| 17.5° | 2493.3 | 2507.2 | 2553.6 | 2631.2 | 2721.6 | 2812.0 | 2832.9 | 2872.3 | 2914.1 | 2956.9 | 3003.3 |
| 20° | 2593.0 | 2604.6 | 2663.7 | 2759.9 | 2866.5 | 2948.8 | 2969.7 | 3004.5 | 3024.2 | 3046.2 | 3085.6 |
| 22.5° | 2692.7 | 2708.9 | 2776.1 | 2889.7 | 3014.9 | 3104.1 | 3120.4 | 3152.8 | 3138.9 | 3132.0 | 3157.5 |
| 25° | 2816.7 | 2838.7 | 2904.8 | 3028.8 | 3156.3 | 3266.4 | 3279.2 | 3307.0 | 3283.8 | 3247.9 | 3246.7 |
| 27.5° | 2970.8 | 2990.6 | 3058.9 | 3186.4 | 3312.8 | 3427.5 | 3451.9 | 3489.0 | 3438.0 | 3393.9 | 3362.6 |
| 30° | 3154.0 | 3166.7 | 3242.1 | 3377.7 | 3507.5 | 3616.5 | 3647.8 | 3684.9 | 3646.6 | 3573.6 | 3542.3 |
| 32.5° | 3367.3 | 3384.7 | 3471.6 | 3614.2 | 3730.1 | 3839.0 | 3870.3 | 3916.7 | 3875.0 | 3792.7 | 3753.3 |
| 35° | 3623.4 | 3640.8 | 3732.4 | 3887.7 | 4005.9 | 4118.4 | 4140.4 | 4178.7 | 4126.5 | 4031.5 | 4000.2 |
| 37.5° | 3901.6 | 3923.7 | 4039.6 | 4186.8 | 4310.8 | 4441.8 | 4442.9 | 4454.5 | 4380.3 | 4262.1 | 4227.3 |
| 40° | 4214.6 | 4243.6 | 4359.5 | 4512.5 | 4662.0 | 4768.7 | 4767.5 | 4735.0 | 4609.9 | 4426.7 | 4373.4 |
| 42.5° | 4524.1 | 4547.3 | 4664.3 | 4822.0 | 4971.5 | 5072.3 | 5042.2 | 4963.4 | 4782.6 | 4533.4 | 4462.6 |
| 45° | 4747.8 | 4765.2 | 4888.0 | 5065.4 | 5217.2 | 5279.8 | 5225.4 | 5130.3 | 4885.7 | 4600.6 | 4496.3 |
| 47.5° | 4853.3 | 4876.5 | 5000.5 | 5176.7 | 5348.2 | 5384.2 | 5319.2 | 5230.0 | 4946.0 | 4663.2 | 4522.9 |
| 50° | 4796.5 | 4826.6 | 4966.9 | 5130.3 | 5323.9 | 5398.1 | 5351.7 | 5262.4 | 5009.8 | 4724.6 | 4570.4 |
| 52.5° | 4649.3 | 4678.2 | 4855.6 | 5053.8 | 5272.9 | 5420.1 | 5418.9 | 5345.9 | 5082.8 | 4742.0 | 4572.8 |
| 55° | 4146.2 | 4203.0 | 4478.9 | 4820.8 | 5210.3 | 5485.0 | 5512.8 | 5435.2 | 5094.4 | 4746.6 | 4597.1 |
| 57.5° | 2698.5 | 2798.1 | 3060.1 | 3505.2 | 4286.5 | 4988.9 | 5176.7 | 5195.2 | 5010.9 | 4726.9 | 4601.7 |
| 60° | 1126.7 | 1206.7 | 1414.1 | 1709.7 | 2355.3 | 3191.1 | 3555.0 | 3920.2 | 4360.6 | 4520.6 | 4558.9 |
| 62.5° | 700.1 | 707.1 | 727.9 | 795.2 | 1010.8 | 1418.8 | 1652.9 | 1994.9 | 2649.8 | 3207.3 | 3464.6 |
| 65° | 631.7 | 635.2 | 639.8 | 635.2 | 645.6 | 695.5 | 758.1 | 877.5 | 1144.1 | 1421.1 | 1750.3 |
| 67.5° | 556.4 | 561.0 | 564.5 | 561.0 | 564.5 | 566.8 | 573.8 | 584.2 | 632.9 | 672.3 | 702.4 |
| 70° | 449.7 | 456.7 | 462.5 | 460.2 | 474.1 | 474.1 | 481.0 | 489.2 | 513.5 | 542.5 | 563.3 |
| 72.5° | 343.1 | 337.3 | 344.3 | 346.6 | 359.3 | 366.3 | 376.7 | 386.0 | 413.8 | 431.2 | 457.9 |
| 75° | 222.6 | 216.8 | 227.2 | 233.0 | 250.4 | 259.6 | 268.9 | 278.2 | 297.9 | 309.5 | 335.0 |
| 77.5° | 120.5 | 119.4 | 129.8 | 137.9 | 156.5 | 168.1 | 175.0 | 182.0 | 198.2 | 201.7 | 217.9 |
| 80° | 69.5 | 69.5 | 76.5 | 82.3 | 93.9 | 106.6 | 113.6 | 119.4 | 131.0 | 134.5 | 141.4 |
| 82.5° | 38.3 | 38.3 | 41.7 | 45.2 | 54.5 | 61.4 | 67.2 | 71.9 | 82.3 | 85.8 | 89.3 |
| 85° | 18.5 | 17.4 | 19.7 | 22.0 | 25.5 | 29.0 | 32.5 | 34.8 | 42.9 | 45.2 | 49.8 |
| 87.5° | 2.3 | 2.3 | 2.3 | 3.5 | 4.6 | 7.0 | 8.1 | 8.1 | 12.8 | 15.1 | 17.4 |
| 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: P639127

CATALOG NUMBER: GWS-SA5B-730-U-RW-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 | 2361.1 |
| 2.5° | 2384.3 | 2369.3 | 2378.5 | 2382.0 | 2382.0 | 2378.5 | 2363.5 | 2358.8 | 2351.9 | 2341.4 | 2341.4 |
| 5° | 2437.6 | 2426.1 | 2428.4 | 2422.6 | 2408.7 | 2391.3 | 2363.5 | 2349.6 | 2338.0 | 2325.2 | 2324.1 |
| 7.5° | 2529.2 | 2514.2 | 2511.8 | 2489.8 | 2452.7 | 2415.6 | 2373.9 | 2348.4 | 2331.0 | 2314.8 | 2313.6 |
| 10° | 2648.6 | 2634.7 | 2617.3 | 2573.3 | 2518.8 | 2464.3 | 2407.5 | 2372.7 | 2347.2 | 2324.1 | 2322.9 |
| 12.5° | 2781.9 | 2765.7 | 2733.2 | 2668.3 | 2599.9 | 2546.6 | 2481.7 | 2428.4 | 2390.1 | 2358.8 | 2353.0 |
| 15° | 2926.8 | 2903.6 | 2848.0 | 2771.5 | 2704.2 | 2647.5 | 2577.9 | 2501.4 | 2443.4 | 2393.6 | 2387.8 |
| 17.5° | 3038.1 | 3007.9 | 2947.7 | 2875.8 | 2820.2 | 2763.4 | 2673.0 | 2576.7 | 2493.3 | 2430.7 | 2421.4 |
| 20° | 3114.6 | 3090.2 | 3021.8 | 2968.5 | 2936.1 | 2886.2 | 2780.8 | 2671.8 | 2577.9 | 2499.1 | 2494.4 |
| 22.5° | 3185.3 | 3156.3 | 3089.1 | 3057.8 | 3057.8 | 3024.2 | 2923.3 | 2794.7 | 2684.5 | 2593.0 | 2581.4 |
| 25° | 3265.3 | 3234.0 | 3183.0 | 3179.5 | 3195.7 | 3180.6 | 3058.9 | 2921.0 | 2792.3 | 2689.2 | 2670.6 |
| 27.5° | 3376.5 | 3341.8 | 3311.6 | 3332.5 | 3355.7 | 3339.5 | 3203.8 | 3043.9 | 2908.3 | 2803.9 | 2787.7 |
| 30° | 3553.9 | 3511.0 | 3483.2 | 3508.7 | 3553.9 | 3506.4 | 3359.2 | 3189.9 | 3053.1 | 2938.4 | 2930.3 |
| 32.5° | 3760.2 | 3711.5 | 3682.6 | 3723.1 | 3763.7 | 3689.5 | 3543.5 | 3381.2 | 3237.4 | 3116.9 | 3103.0 |
| 35° | 4008.3 | 3946.8 | 3903.9 | 3958.4 | 4000.2 | 3927.1 | 3782.2 | 3628.1 | 3468.1 | 3342.9 | 3324.4 |
| 37.5° | 4228.5 | 4154.3 | 4125.3 | 4201.8 | 4257.5 | 4210.0 | 4052.3 | 3907.4 | 3732.4 | 3595.6 | 3587.5 |
| 40° | 4388.5 | 4315.4 | 4294.6 | 4420.9 | 4518.3 | 4506.7 | 4365.3 | 4199.5 | 4034.9 | 3877.3 | 3862.2 |
| 42.5° | 4458.0 | 4407.0 | 4411.6 | 4582.0 | 4732.7 | 4806.9 | 4680.6 | 4503.2 | 4344.4 | 4181.0 | 4170.5 |
| 45° | 4473.1 | 4441.8 | 4478.9 | 4692.2 | 4890.4 | 5042.2 | 4934.4 | 4786.0 | 4606.4 | 4448.7 | 4444.1 |
| 47.5° | 4489.3 | 4471.9 | 4528.7 | 4754.7 | 4990.0 | 5166.2 | 5106.0 | 4953.0 | 4771.0 | 4616.8 | 4605.2 |
| 50° | 4527.6 | 4520.6 | 4584.4 | 4798.8 | 5037.6 | 5199.9 | 5131.5 | 4979.6 | 4793.0 | 4641.2 | 4613.3 |
| 52.5° | 4539.1 | 4527.6 | 4619.1 | 4867.2 | 5116.4 | 5198.7 | 5051.5 | 4853.3 | 4665.5 | 4496.3 | 4467.3 |
| 55° | 4575.1 | 4554.2 | 4616.8 | 4892.7 | 5225.4 | 5265.9 | 5046.8 | 4750.1 | 4488.1 | 4257.5 | 4189.1 |
| 57.5° | 4584.4 | 4561.2 | 4601.7 | 4851.0 | 5107.1 | 5071.2 | 4436.0 | 3833.2 | 3339.5 | 3083.3 | 3112.3 |
| 60° | 4534.5 | 4541.5 | 4471.9 | 4444.1 | 4096.4 | 3616.5 | 2715.8 | 2171.0 | 1705.1 | 1508.0 | 1550.9 |
| 62.5° | 3451.9 | 3480.9 | 3243.2 | 2820.2 | 2168.7 | 1719.0 | 1137.1 | 883.3 | 747.6 | 712.9 | 718.7 |
| 65° | 1742.2 | 1781.6 | 1534.7 | 1269.2 | 943.5 | 762.7 | 659.5 | 638.7 | 631.7 | 623.6 | 623.6 |
| 67.5° | 689.7 | 701.3 | 692.0 | 648.0 | 602.7 | 586.5 | 581.9 | 579.6 | 571.5 | 566.8 | 568.0 |
| 70° | 554.1 | 563.3 | 549.4 | 521.6 | 503.1 | 501.9 | 499.6 | 494.9 | 489.2 | 489.2 | 492.6 |
| 72.5° | 452.1 | 461.3 | 441.6 | 424.2 | 410.3 | 399.9 | 394.1 | 390.6 | 382.5 | 382.5 | 386.0 |
| 75° | 332.7 | 338.5 | 322.2 | 319.9 | 304.9 | 294.4 | 285.1 | 280.5 | 270.1 | 265.4 | 268.9 |
| 77.5° | 221.4 | 220.2 | 212.1 | 212.1 | 206.3 | 193.6 | 183.1 | 172.7 | 158.8 | 149.5 | 151.8 |
| 80° | 143.7 | 143.7 | 140.3 | 140.3 | 134.5 | 124.0 | 111.3 | 100.8 | 92.7 | 85.8 | 85.8 |
| 82.5° | 91.6 | 90.4 | 89.3 | 88.1 | 85.8 | 75.3 | 66.1 | 59.1 | 53.3 | 48.7 | 49.8 |
| 85° | 51.0 | 51.0 | 48.7 | 48.7 | 44.0 | 38.3 | 33.6 | 29.0 | 25.5 | 24.3 | 24.3 |
| 87.5° | 17.4 | 17.4 | 16.2 | 16.2 | 13.9 | 10.4 | 8.1 | 7.0 | 5.8 | 4.6 | 5.8 |
| 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: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-2-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-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 2993 | CRI (Ra): | 71.8 | R9: | -38.3 |
| CIE u': | 0.2508 | R1: | 67.5 | R10: | 62.5 |
| CIE v': | 0.5215 | R2: | 82.9 | R11: | 63.7 |
| Duv: | 0.0000 | R3: | 94.7 | R12: | 57.8 |
| CIE x: | 0.4374 | R4: | 67.7 | R13: | 70.4 |
| CIE y: | 0.4043 | R5: | 67.9 | R14: | 97.3 |
| CIE z: | 0.1583 | R6: | 77.6 | | |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |
| Rf: | 75.7 | | | | |
| Rg: | 93.9 | | | | |



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

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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 3000K 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)