

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: P640650

Luminaire Tested: GWS-SA5E-730-U-T4FT-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P640650
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-54)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA5E-730-U-T4FT-W
Description: GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV FORWARD THROW OPTICS
Light Source: (80) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 33019.8 lumens
Efficiency: N/A
Efficacy: 122.5 lumens/watt
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G5

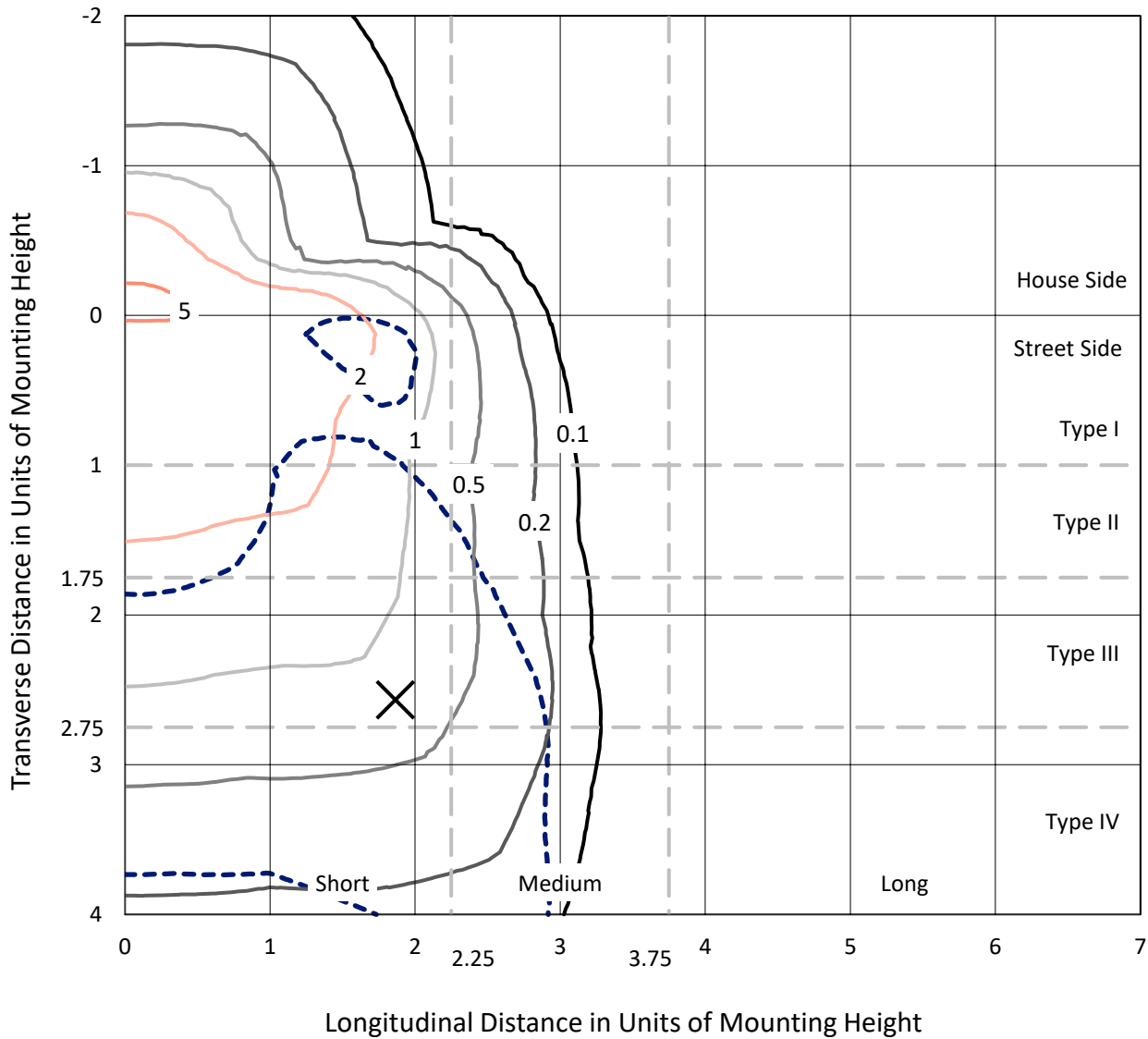
Input Watts (W): 269.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P640650
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Iso-Footcandle Lines of Horizontal Illumination

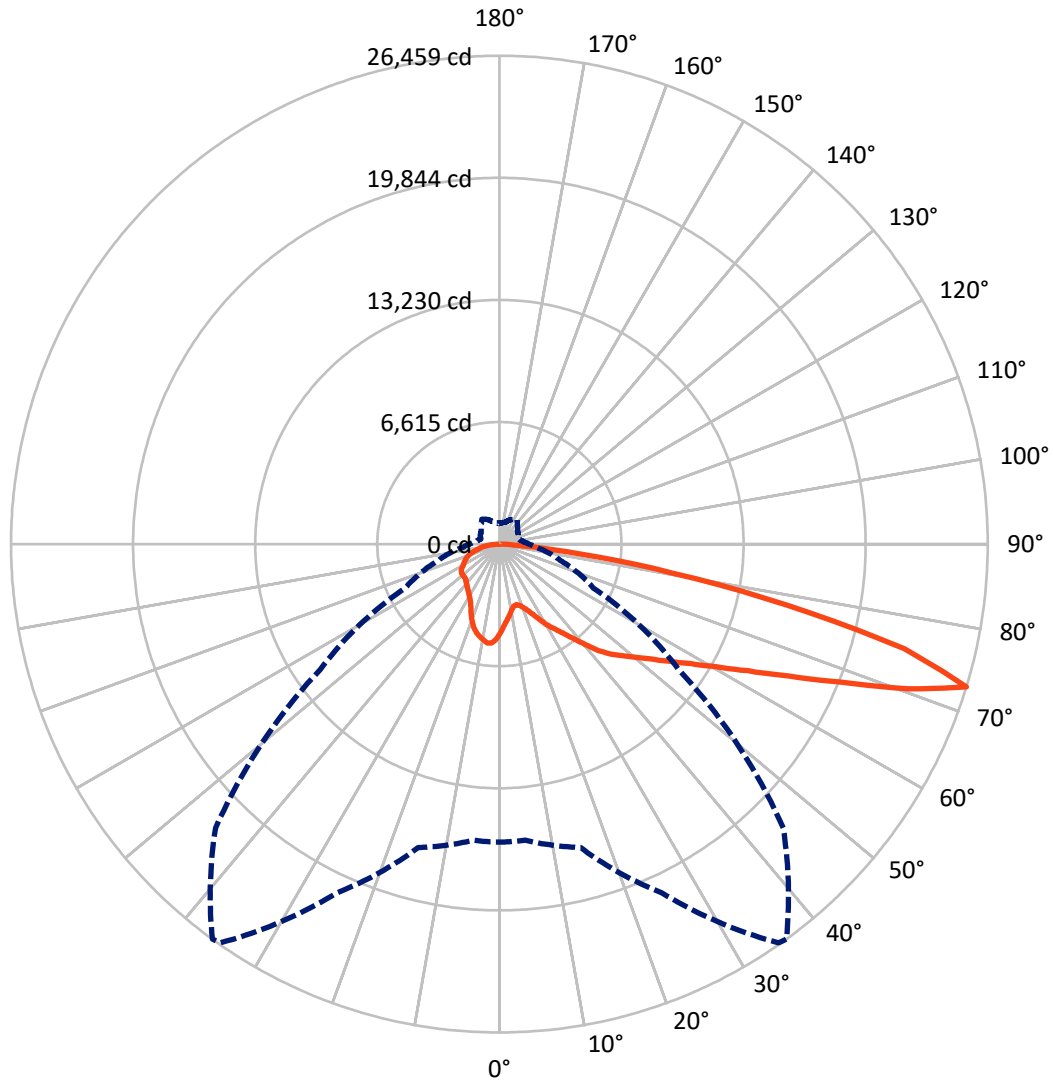
✕ Max cd
 - - - 1/2 Max cd



Based on 30 foot mounting height. Maximum calculated value = 5.7 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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CATALOG NUMBER: GWS-SA5E-730-U-T4FT-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 7612.5 | 0.0 | 7612.5 |
| | % Fixture | 23.1 | 0.0 | 23.1 |
| Street Side | Lumens | 25407.3 | 0.0 | 25407.3 |
| | % Fixture | 76.9 | 0.0 | 76.9 |
| Total | Lumens | 33019.8 | 0.0 | 33019.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 451.7 | 1.4 |
| 10°-20° | 1274.5 | 3.9 |
| 20°-30° | 2110.7 | 6.4 |
| 30°-40° | 3160.9 | 9.6 |
| 40°-50° | 4611.5 | 14.0 |
| 50°-60° | 6563.6 | 19.9 |
| 60°-70° | 8292.6 | 25.1 |
| 70°-80° | 5909.2 | 17.9 |
| 80°-90° | 645.1 | 2.0 |
| 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° | 33019.8 | 100.0 |
| 0°-180° | 33019.8 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P640650

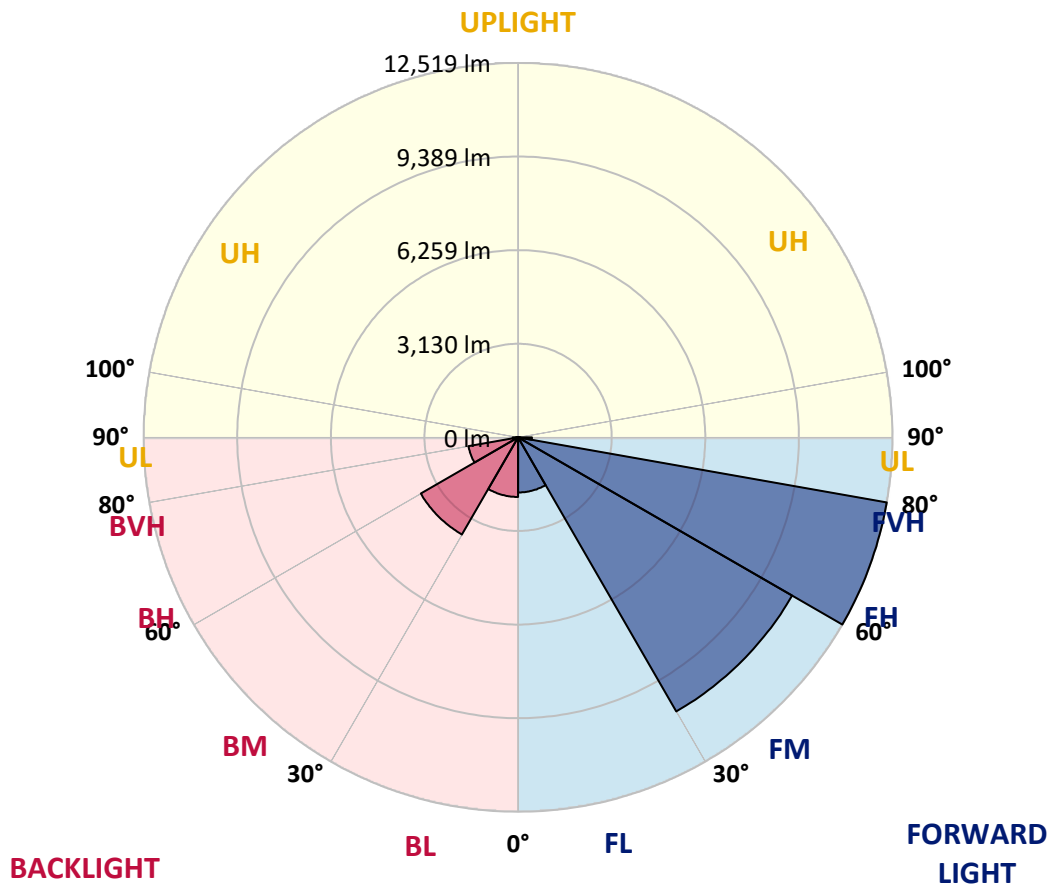
CATALOG NUMBER: GWS-SA5E-730-U-T4FT-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|---------|---------------------------------------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1843.4 | 5.6 | | | |
| FM (30°-60°) | 10582.0 | 32.0 | | | |
| FH (60°-80°) | 12518.9 | 37.9 | | | G5 |
| FVH (80°-90°) | 463.0 | 1.4 | | | G3/500 |
| BL (0°-30°) | 1993.5 | 6.0 | B3/2500 | | |
| BM (30°-60°) | 3754.0 | 11.4 | B3/5000 | | |
| BH (60°-80°) | 1682.9 | 5.1 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 182.1 | 0.6 | | | G2/225 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 <td></td> <td>U0/0</td> <td></td> | | U0/0 | |

BUG Rating: B3-U0-G5

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 |
| 2.5° | 4408.6 | 4401.3 | 4386.6 | 4430.7 | 4474.8 | 4469.9 | 4531.2 | 4590.0 | 4653.7 | 4719.9 | 4808.1 |
| 5° | 4055.8 | 4050.9 | 4038.6 | 4104.8 | 4170.9 | 4168.5 | 4269.0 | 4364.5 | 4494.4 | 4636.5 | 4813.0 |
| 7.5° | 3702.9 | 3690.6 | 3707.8 | 3791.1 | 3884.2 | 3894.0 | 4031.2 | 4188.1 | 4376.8 | 4590.0 | 4839.9 |
| 10° | 3391.6 | 3389.2 | 3396.5 | 3489.7 | 3629.3 | 3639.2 | 3815.6 | 4033.7 | 4283.7 | 4567.9 | 4901.2 |
| 12.5° | 3310.8 | 3305.9 | 3286.3 | 3332.8 | 3438.2 | 3452.9 | 3646.5 | 3913.6 | 4219.9 | 4580.2 | 4984.5 |
| 15° | 3443.1 | 3430.8 | 3362.2 | 3340.2 | 3391.6 | 3403.9 | 3568.1 | 3842.6 | 4183.2 | 4602.2 | 5089.9 |
| 17.5° | 3671.0 | 3663.7 | 3533.8 | 3443.1 | 3477.4 | 3487.2 | 3609.7 | 3830.3 | 4173.4 | 4646.3 | 5219.8 |
| 20° | 4004.3 | 3972.4 | 3769.0 | 3631.8 | 3631.8 | 3646.5 | 3720.0 | 3884.2 | 4185.6 | 4700.3 | 5366.8 |
| 22.5° | 4445.4 | 4381.7 | 4095.0 | 3908.7 | 3859.7 | 3879.3 | 3911.2 | 4019.0 | 4237.1 | 4790.9 | 5550.6 |
| 25° | 4940.4 | 4881.6 | 4541.0 | 4278.8 | 4210.1 | 4217.5 | 4190.5 | 4210.1 | 4349.8 | 4915.9 | 5778.5 |
| 27.5° | 5467.3 | 5428.1 | 5065.4 | 4732.1 | 4624.3 | 4624.3 | 4528.7 | 4482.2 | 4506.7 | 5058.1 | 6033.4 |
| 30° | 5937.8 | 5883.9 | 5577.6 | 5212.4 | 5070.3 | 5070.3 | 4889.0 | 4788.5 | 4729.7 | 5232.0 | 6374.0 |
| 32.5° | 6185.3 | 6153.5 | 5950.1 | 5670.7 | 5496.7 | 5469.8 | 5312.9 | 5195.3 | 5058.1 | 5489.4 | 6834.7 |
| 35° | 6508.8 | 6501.5 | 6378.9 | 6160.8 | 5940.3 | 5901.1 | 5793.2 | 5700.1 | 5462.4 | 5810.4 | 7447.4 |
| 37.5° | 6915.6 | 6903.4 | 6883.8 | 6753.9 | 6489.2 | 6481.9 | 6386.3 | 6273.6 | 5964.8 | 6273.6 | 8189.9 |
| 40° | 7371.4 | 7349.4 | 7324.9 | 7322.4 | 7163.1 | 7136.2 | 7128.8 | 7001.4 | 6570.1 | 6832.3 | 8964.3 |
| 42.5° | 7998.8 | 7922.8 | 7692.5 | 7795.4 | 7913.0 | 7888.5 | 7981.6 | 7790.5 | 7324.9 | 7496.4 | 9697.0 |
| 45° | 8770.7 | 8584.5 | 8128.7 | 8158.1 | 8454.6 | 8503.6 | 8827.1 | 8780.5 | 8155.6 | 8263.4 | 10469.0 |
| 47.5° | 9233.9 | 9072.1 | 8648.2 | 8623.7 | 8993.7 | 9055.0 | 9758.3 | 9846.5 | 9050.1 | 9187.3 | 11422.3 |
| 50° | 9613.7 | 9501.0 | 9153.0 | 9187.3 | 9579.4 | 9640.7 | 10682.2 | 10870.9 | 9893.1 | 10133.3 | 12530.0 |
| 52.5° | 10072.0 | 9910.3 | 9640.7 | 9802.4 | 10282.7 | 10356.3 | 11709.0 | 11912.4 | 10652.8 | 11172.3 | 13676.8 |
| 55° | 10329.3 | 10263.1 | 10268.0 | 10515.6 | 11118.4 | 11218.9 | 12784.8 | 12750.5 | 11348.8 | 12061.9 | 14539.4 |
| 57.5° | 10922.4 | 10897.8 | 11123.3 | 11216.4 | 12093.7 | 12223.6 | 13860.6 | 13566.6 | 11981.0 | 12750.5 | 14953.6 |
| 60° | 11968.8 | 11907.5 | 12103.5 | 12245.7 | 13299.4 | 13483.2 | 15061.4 | 14365.5 | 12409.9 | 13262.7 | 14813.9 |
| 62.5° | 13439.1 | 13363.2 | 13370.5 | 13596.0 | 14914.4 | 15108.0 | 16397.0 | 15032.0 | 12542.2 | 13341.1 | 13929.2 |
| 65° | 15267.3 | 15157.0 | 15032.0 | 15338.3 | 17058.7 | 17220.4 | 17850.2 | 15517.2 | 12226.1 | 12586.3 | 12081.5 |
| 67.5° | 17195.9 | 17105.2 | 16958.2 | 17600.3 | 19835.2 | 19933.2 | 19479.9 | 15475.6 | 11223.8 | 10567.0 | 8474.2 |
| 70° | 17308.6 | 17330.7 | 18026.7 | 20349.8 | 23459.7 | 23484.2 | 21021.3 | 14637.5 | 9089.3 | 6849.4 | 4222.4 |
| 72.5° | 16147.0 | 16110.3 | 17017.0 | 20852.2 | 26375.9 | 26459.2 | 21749.1 | 11858.5 | 5616.8 | 3416.1 | 1980.1 |
| 75° | 13115.6 | 13179.4 | 14132.6 | 18244.8 | 22606.8 | 22680.4 | 17730.1 | 6991.6 | 2668.7 | 1671.3 | 1267.0 |
| 77.5° | 5646.2 | 6001.5 | 7881.1 | 12853.4 | 16191.2 | 15963.2 | 9138.3 | 2832.9 | 1423.8 | 1191.0 | 970.4 |
| 80° | 1629.7 | 1769.3 | 2808.4 | 6111.8 | 9702.0 | 9530.4 | 3617.1 | 1061.1 | 992.5 | 894.5 | 696.0 |
| 82.5° | 526.9 | 583.2 | 1029.3 | 2433.5 | 4347.4 | 4342.5 | 1372.3 | 627.4 | 649.4 | 607.8 | 448.5 |
| 85° | 147.0 | 169.1 | 316.1 | 737.6 | 1345.4 | 1318.4 | 397.0 | 296.5 | 345.5 | 350.4 | 223.0 |
| 87.5° | 0.0 | 0.0 | 2.5 | 4.9 | 4.9 | 4.9 | 9.8 | 44.1 | 100.5 | 127.4 | 90.7 |
| 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: P640650

CATALOG NUMBER: GWS-SA5E-730-U-T4FT-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 | 4832.6 |
| 2.5° | 4862.0 | 4854.7 | 4955.1 | 5033.5 | 5107.1 | 5156.1 | 5170.8 | 5180.6 | 5200.2 | 5210.0 | 5200.2 |
| 5° | 4896.3 | 4933.1 | 5099.7 | 5222.2 | 5320.3 | 5379.1 | 5381.5 | 5376.6 | 5391.3 | 5379.1 | 5371.7 |
| 7.5° | 4969.8 | 5040.9 | 5251.6 | 5381.5 | 5445.2 | 5447.7 | 5388.9 | 5320.3 | 5286.0 | 5256.6 | 5246.7 |
| 10° | 5067.9 | 5173.2 | 5403.6 | 5489.4 | 5469.8 | 5379.1 | 5249.2 | 5141.4 | 5080.1 | 5036.0 | 5026.2 |
| 12.5° | 5202.6 | 5320.3 | 5538.4 | 5535.9 | 5413.4 | 5251.6 | 5099.7 | 4969.8 | 4881.6 | 4830.1 | 4813.0 |
| 15° | 5330.1 | 5479.6 | 5636.4 | 5521.2 | 5327.6 | 5131.6 | 4935.5 | 4761.5 | 4643.9 | 4563.0 | 4548.3 |
| 17.5° | 5486.9 | 5646.2 | 5707.5 | 5474.7 | 5219.8 | 4967.4 | 4705.2 | 4477.3 | 4318.0 | 4222.4 | 4215.0 |
| 20° | 5668.3 | 5810.4 | 5741.8 | 5393.8 | 5080.1 | 4749.3 | 4393.9 | 4139.1 | 3967.5 | 3874.4 | 3881.8 |
| 22.5° | 5879.0 | 5981.9 | 5751.6 | 5283.5 | 4886.5 | 4440.5 | 4043.5 | 3798.4 | 3683.3 | 3634.2 | 3636.7 |
| 25° | 6104.5 | 6170.6 | 5734.4 | 5134.0 | 4590.0 | 4063.1 | 3683.3 | 3570.5 | 3560.7 | 3548.5 | 3553.4 |
| 27.5° | 6371.6 | 6356.9 | 5683.0 | 4923.3 | 4190.5 | 3624.4 | 3430.8 | 3460.3 | 3499.5 | 3494.6 | 3499.5 |
| 30° | 6729.4 | 6589.7 | 5616.8 | 4631.6 | 3715.1 | 3256.9 | 3281.4 | 3364.7 | 3416.1 | 3421.0 | 3435.8 |
| 32.5° | 7138.6 | 6847.0 | 5511.4 | 4234.6 | 3261.8 | 3051.0 | 3141.7 | 3242.2 | 3303.4 | 3315.7 | 3335.3 |
| 35° | 7626.3 | 7141.1 | 5325.2 | 3739.6 | 2935.8 | 2928.5 | 3011.8 | 3080.4 | 3146.6 | 3151.5 | 3151.5 |
| 37.5° | 8187.5 | 7435.1 | 5028.6 | 3193.1 | 2734.9 | 2823.1 | 2901.5 | 2916.2 | 2933.4 | 2918.7 | 2926.0 |
| 40° | 8702.1 | 7719.4 | 4607.1 | 2695.7 | 2570.7 | 2730.0 | 2796.1 | 2747.1 | 2693.2 | 2656.5 | 2663.8 |
| 42.5° | 9133.4 | 7913.0 | 4048.4 | 2347.7 | 2404.0 | 2646.7 | 2698.1 | 2597.6 | 2492.3 | 2423.6 | 2433.5 |
| 45° | 9618.6 | 8091.9 | 3391.6 | 2112.4 | 2261.9 | 2587.8 | 2622.1 | 2492.3 | 2357.5 | 2254.6 | 2239.9 |
| 47.5° | 10287.6 | 8457.0 | 2808.4 | 1948.2 | 2161.4 | 2556.0 | 2612.3 | 2435.9 | 2259.5 | 2105.1 | 2087.9 |
| 50° | 11113.5 | 8974.1 | 2320.7 | 1840.4 | 2114.9 | 2538.8 | 2609.9 | 2374.6 | 2163.9 | 1982.5 | 1970.3 |
| 52.5° | 12015.3 | 9478.9 | 1960.5 | 1757.1 | 2068.3 | 2487.4 | 2597.6 | 2306.0 | 2063.4 | 1867.4 | 1852.7 |
| 55° | 12615.7 | 9677.4 | 1717.9 | 1678.7 | 1992.3 | 2406.5 | 2548.6 | 2239.9 | 1911.5 | 1732.6 | 1710.5 |
| 57.5° | 12792.2 | 9422.6 | 1548.8 | 1607.6 | 1894.3 | 2293.8 | 2455.5 | 2100.2 | 1818.3 | 1676.2 | 1659.1 |
| 60° | 12488.3 | 8780.5 | 1443.4 | 1548.8 | 1786.5 | 2149.2 | 2293.8 | 2019.3 | 1744.8 | 1617.4 | 1605.1 |
| 62.5° | 11630.6 | 7790.5 | 1362.5 | 1487.5 | 1676.2 | 1997.2 | 2190.8 | 1921.3 | 1664.0 | 1563.5 | 1546.3 |
| 65° | 9905.4 | 6388.7 | 1296.4 | 1423.8 | 1570.8 | 1852.7 | 2078.1 | 1823.3 | 1575.7 | 1499.8 | 1480.2 |
| 67.5° | 6927.9 | 4487.1 | 1225.3 | 1347.8 | 1465.5 | 1713.0 | 1960.5 | 1732.6 | 1485.1 | 1428.7 | 1409.1 |
| 70° | 3386.7 | 2379.5 | 1139.5 | 1259.6 | 1352.7 | 1570.8 | 1842.9 | 1622.3 | 1365.0 | 1333.1 | 1306.2 |
| 72.5° | 1612.5 | 1330.7 | 1039.1 | 1139.5 | 1198.3 | 1382.1 | 1646.8 | 1463.0 | 1222.9 | 1154.2 | 1107.7 |
| 75° | 1080.7 | 945.9 | 906.7 | 997.4 | 1012.1 | 1159.1 | 1411.5 | 1262.1 | 1078.3 | 999.8 | 960.6 |
| 77.5° | 818.5 | 722.9 | 762.1 | 843.0 | 813.6 | 953.3 | 1161.6 | 1124.8 | 972.9 | 901.8 | 882.2 |
| 80° | 575.9 | 526.9 | 605.3 | 654.3 | 632.3 | 811.2 | 1046.4 | 963.1 | 801.3 | 722.9 | 708.2 |
| 82.5° | 362.7 | 352.9 | 446.0 | 453.4 | 460.7 | 642.1 | 860.2 | 757.2 | 622.5 | 512.2 | 475.4 |
| 85° | 181.3 | 200.9 | 267.1 | 267.1 | 264.7 | 330.8 | 490.1 | 426.4 | 335.7 | 267.1 | 259.8 |
| 87.5° | 61.3 | 85.8 | 115.2 | 93.1 | 71.1 | 56.4 | 63.7 | 78.4 | 83.3 | 80.9 | 80.9 |
| 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
 CIE u': 0.2508
 CIE v': 0.5215
 Duv: 0.0000
 CIE x: 0.4374
 CIE y: 0.4043
 CIE z: 0.1583
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 53

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.8 | | |
| R1: | 67.5 | R9: | -38.3 |
| R2: | 82.9 | R10: | 62.5 |
| R3: | 94.7 | R11: | 63.7 |
| R4: | 67.7 | R12: | 57.8 |
| R5: | 67.9 | R13: | 70.4 |
| R6: | 77.6 | R14: | 97.3 |
| R7: | 76.0 | | |
| R8: | 40.5 | | |

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

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

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

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

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

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 | 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 | | | |

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

TM-30-18

Summary

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



Color Vector Graphics



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

TM-30-18

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 | |



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

TM-30-18

Color Rendition by Hue-Angle Bin



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

TM-30-18

Measure Comparisons



(END OF REPORT)