

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: P637174

Luminaire Tested: GWS-SA4C-730-U-T2R-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P637174
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-14)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4C-730-U-T2R-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS WITH HOUSE SIDE SHIELD
Light Source: (64) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14255.8 lumens
Efficiency: N/A
Efficacy: 110.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

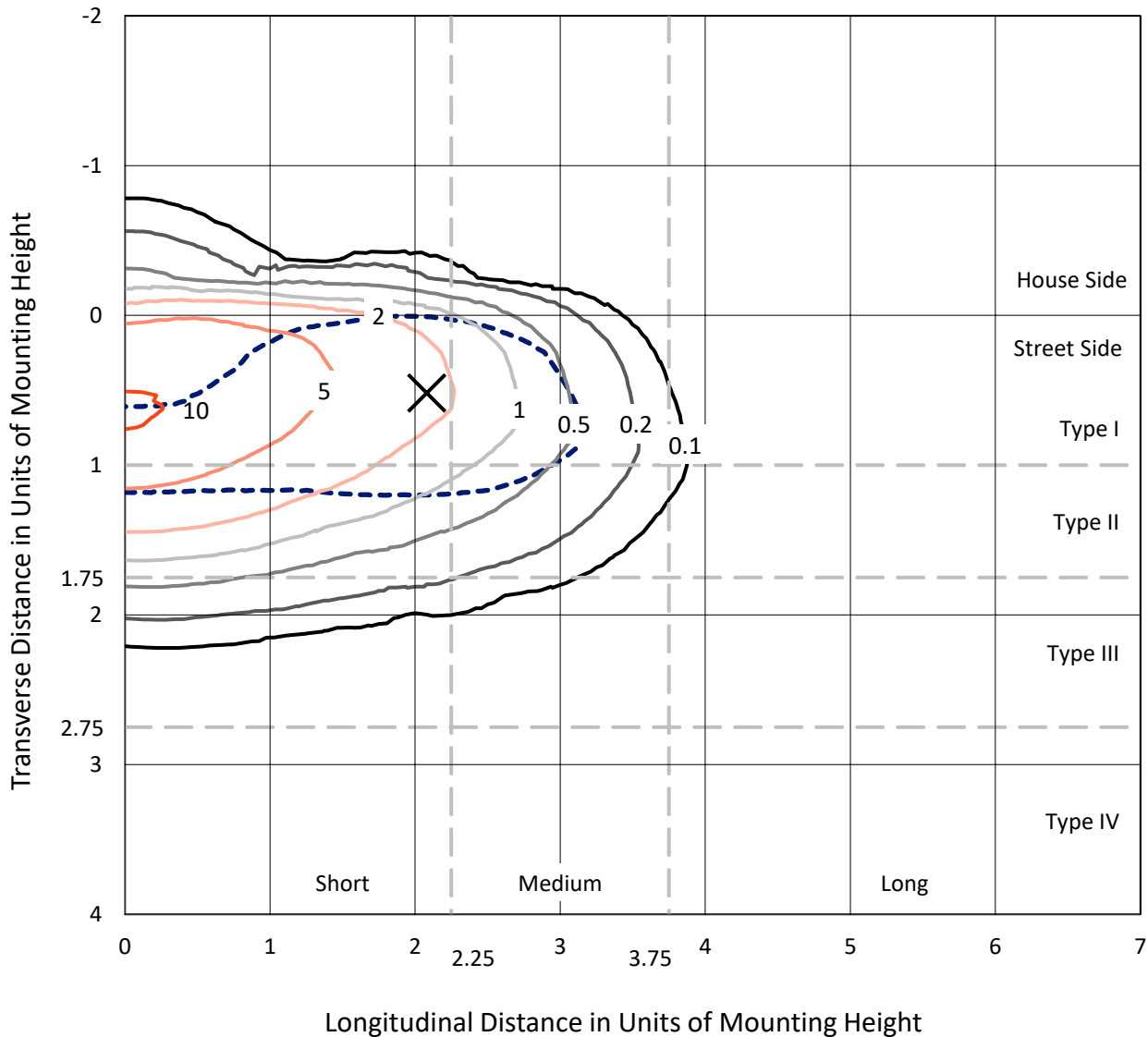
Input Watts (W): 128.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P637174
 CATALOG NUMBER: GWS-SA4C-730-U-T2R-W-HSS

Iso-Footcandle Lines of Horizontal Illumination

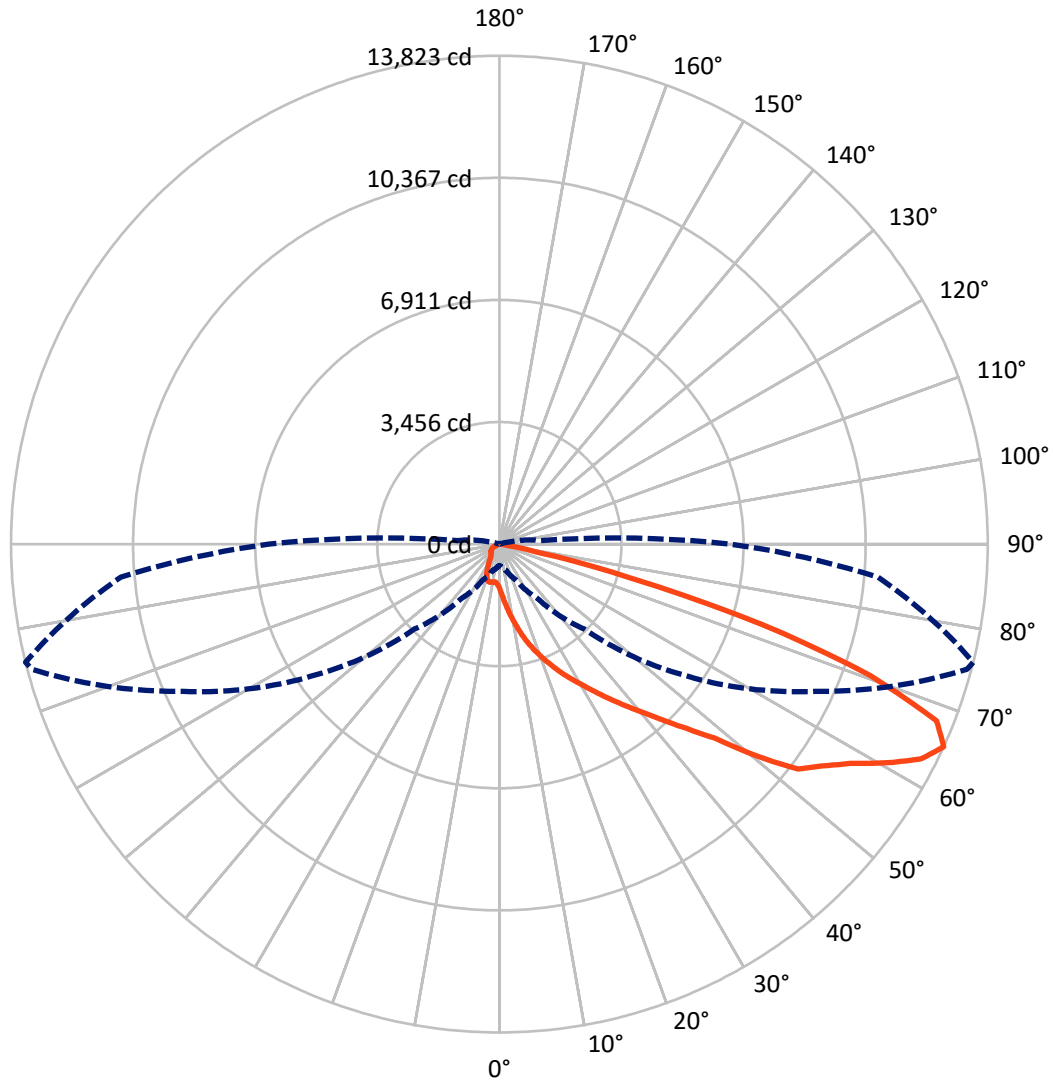
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 10.7 fc
 Type II - Short - N/A

REPORT NUMBER: P637174
CATALOG NUMBER: GWS-SA4C-730-U-T2R-W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 788.3 | 0.0 | 788.3 |
| | % Fixture | 5.5 | 0.0 | 5.5 |
| Street Side | Lumens | 13467.5 | 0.0 | 13467.5 |
| | % Fixture | 94.5 | 0.0 | 94.5 |
| Total | Lumens | 14255.8 | 0.0 | 14255.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 153.5 | 1.1 |
| 10°-20° | 582.6 | 4.1 |
| 20°-30° | 1188.7 | 8.3 |
| 30°-40° | 2114.1 | 14.8 |
| 40°-50° | 3125.1 | 21.9 |
| 50°-60° | 3578.0 | 25.1 |
| 60°-70° | 2729.9 | 19.1 |
| 70°-80° | 764.7 | 5.4 |
| 80°-90° | 19.3 | 0.1 |
| 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° | 14255.8 | 100.0 |
| 0°-180° | 14255.8 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P637174

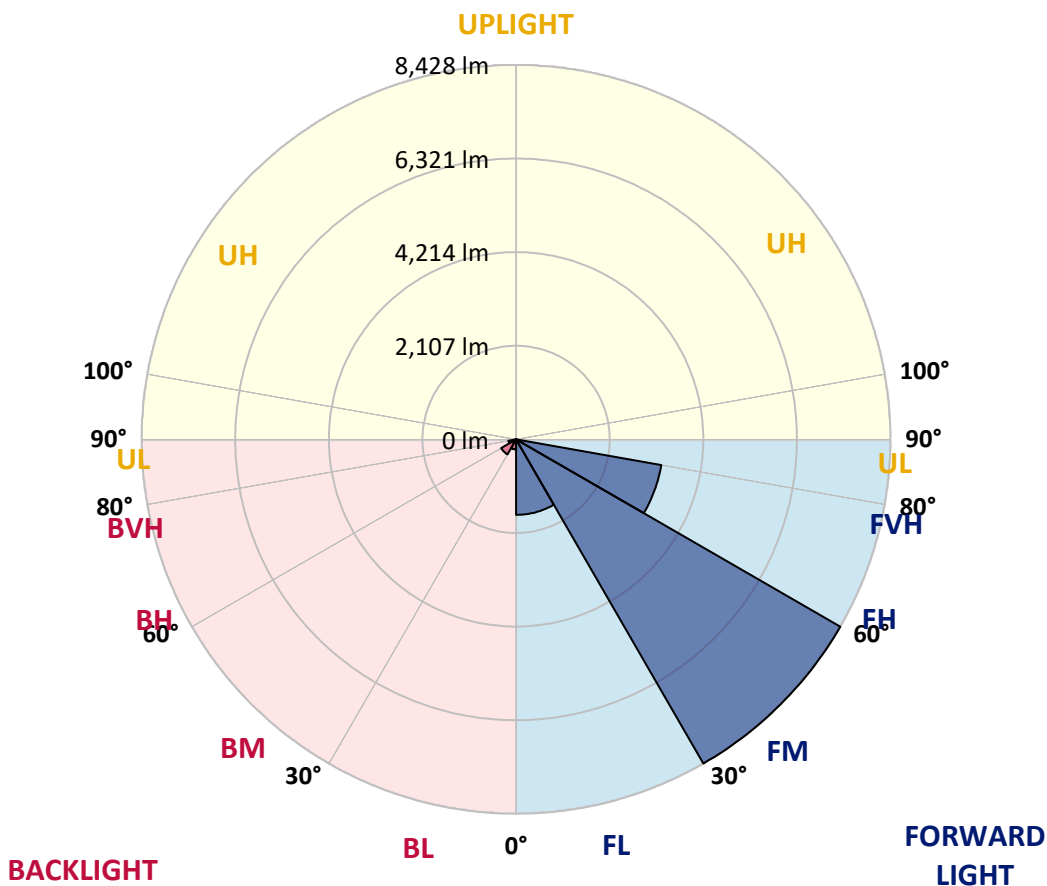
CATALOG NUMBER: GWS-SA4C-730-U-T2R-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1699.9 | 11.9 | | | |
| FM (30°-60°) | 8428.3 | 59.1 | | | |
| FH (60°-80°) | 3321.3 | 23.3 | | | G2/5000 |
| FVH (80°-90°) | 18.1 | 0.1 | | | G1/100 |
| BL (0°-30°) | 224.9 | 1.6 | B1/500 | | |
| BM (30°-60°) | 388.9 | 2.7 | B1/1000 | | |
| BH (60°-80°) | 173.3 | 1.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 1.1 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| 0° | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 |
| 2.5° | 1945.2 | 1974.3 | 1951.5 | 1913.5 | 1840.0 | 1769.0 | 1677.8 | 1552.4 | 1452.2 | 1439.6 | 1345.8 |
| 5° | 2627.0 | 2624.4 | 2575.0 | 2525.6 | 2448.3 | 2326.6 | 2142.9 | 1909.7 | 1685.4 | 1666.4 | 1456.0 |
| 7.5° | 3032.5 | 3036.3 | 3008.4 | 2970.4 | 2894.3 | 2768.9 | 2577.5 | 2296.2 | 1968.0 | 1930.0 | 1606.8 |
| 10° | 3373.4 | 3372.1 | 3351.8 | 3334.1 | 3265.6 | 3182.0 | 2976.7 | 2667.5 | 2272.1 | 2212.6 | 1775.4 |
| 12.5° | 3629.3 | 3638.2 | 3648.3 | 3666.1 | 3636.9 | 3554.6 | 3360.7 | 3023.6 | 2580.1 | 2514.2 | 1968.0 |
| 15° | 3832.1 | 3834.6 | 3872.6 | 3941.1 | 3965.2 | 3922.1 | 3745.9 | 3368.3 | 2884.2 | 2827.2 | 2189.8 |
| 17.5° | 3892.9 | 3898.0 | 3962.6 | 4088.1 | 4214.8 | 4238.9 | 4105.8 | 3715.5 | 3183.3 | 3122.4 | 2405.2 |
| 20° | 4020.9 | 4032.3 | 4080.5 | 4190.7 | 4350.4 | 4479.6 | 4427.7 | 4066.5 | 3482.3 | 3402.5 | 2625.7 |
| 22.5° | 4423.9 | 4430.2 | 4413.8 | 4427.7 | 4510.1 | 4659.6 | 4691.3 | 4406.1 | 3789.0 | 3704.1 | 2863.9 |
| 25° | 5117.1 | 5119.6 | 5004.3 | 4895.3 | 4833.2 | 4861.1 | 4930.8 | 4719.2 | 4093.1 | 4009.5 | 3085.7 |
| 27.5° | 5836.8 | 5845.7 | 5707.6 | 5522.6 | 5300.8 | 5174.1 | 5153.8 | 5005.5 | 4399.8 | 4307.3 | 3304.9 |
| 30° | 6514.8 | 6514.8 | 6369.1 | 6143.5 | 5847.0 | 5599.9 | 5454.1 | 5294.5 | 4728.0 | 4626.6 | 3529.2 |
| 32.5° | 7124.4 | 7119.3 | 6933.0 | 6688.4 | 6395.7 | 6124.5 | 5817.8 | 5596.1 | 5093.0 | 4980.2 | 3787.7 |
| 35° | 7627.4 | 7614.8 | 7403.1 | 7168.7 | 6855.7 | 6654.2 | 6312.1 | 5920.5 | 5488.4 | 5375.6 | 4053.9 |
| 37.5° | 8007.6 | 7993.7 | 7799.8 | 7551.4 | 7261.2 | 7130.7 | 6844.3 | 6309.5 | 5905.3 | 5802.6 | 4349.1 |
| 40° | 8214.2 | 8186.3 | 8052.0 | 7866.9 | 7623.6 | 7509.6 | 7390.5 | 6792.3 | 6395.7 | 6267.7 | 4697.6 |
| 42.5° | 8275.0 | 8242.0 | 8153.3 | 8067.2 | 7920.2 | 7830.2 | 7958.2 | 7337.2 | 6934.3 | 6824.0 | 5095.5 |
| 45° | 8095.0 | 8076.0 | 8068.4 | 8130.5 | 8157.1 | 8182.5 | 8498.0 | 7940.4 | 7528.6 | 7445.0 | 5596.1 |
| 47.5° | 7661.7 | 7656.6 | 7723.7 | 7982.3 | 8263.6 | 8531.0 | 9084.8 | 8684.3 | 8299.1 | 8209.1 | 6295.6 |
| 50° | 6860.8 | 6912.7 | 7100.3 | 7553.9 | 8116.6 | 8728.7 | 9633.5 | 9715.8 | 9546.0 | 9414.2 | 7208.0 |
| 52.5° | 5608.7 | 5708.9 | 6129.6 | 6818.9 | 7627.4 | 8672.9 | 9886.9 | 10542.1 | 10715.7 | 10578.8 | 7861.9 |
| 55° | 4401.1 | 4494.9 | 4870.0 | 5744.3 | 6822.8 | 8248.4 | 9898.3 | 10827.2 | 11206.1 | 11079.4 | 8304.1 |
| 57.5° | 3278.3 | 3364.5 | 3705.4 | 4541.7 | 5727.9 | 7413.3 | 9627.1 | 10985.6 | 11787.7 | 11706.6 | 9002.4 |
| 60° | 2142.9 | 2227.8 | 2535.7 | 3266.9 | 4442.9 | 6196.7 | 8959.3 | 10952.6 | 12579.8 | 12572.2 | 9860.3 |
| 62.5° | 1188.7 | 1255.8 | 1478.9 | 2049.1 | 3100.9 | 4799.0 | 7910.0 | 10621.9 | 13346.4 | 13394.6 | 10567.4 |
| 65° | 608.3 | 651.4 | 786.9 | 1126.6 | 1876.8 | 3402.5 | 6530.0 | 9864.1 | 13701.3 | 13822.9 | 10753.7 |
| 67.5° | 397.9 | 411.8 | 444.8 | 585.5 | 1004.9 | 2140.3 | 4914.3 | 8648.8 | 13202.0 | 13343.9 | 10128.9 |
| 70° | 323.1 | 334.5 | 353.6 | 390.3 | 518.3 | 1136.7 | 3227.6 | 6907.7 | 11031.2 | 11127.5 | 8065.9 |
| 72.5° | 237.0 | 252.2 | 288.9 | 313.0 | 373.8 | 623.5 | 1679.1 | 4534.1 | 7575.5 | 7745.3 | 5068.9 |
| 75° | 174.9 | 183.7 | 214.2 | 247.1 | 305.4 | 394.1 | 642.5 | 2383.7 | 3911.9 | 3813.1 | 2128.9 |
| 77.5° | 105.2 | 111.5 | 136.9 | 158.4 | 218.0 | 245.8 | 224.3 | 880.7 | 1189.9 | 1119.0 | 514.5 |
| 80° | 52.0 | 58.3 | 90.0 | 119.1 | 139.4 | 98.8 | 93.8 | 245.8 | 264.9 | 264.9 | 129.3 |
| 82.5° | 17.7 | 22.8 | 48.2 | 78.6 | 68.4 | 38.0 | 44.4 | 63.4 | 71.0 | 74.8 | 38.0 |
| 85° | 0.0 | 0.0 | 11.4 | 22.8 | 10.1 | 5.1 | 11.4 | 13.9 | 17.7 | 19.0 | 12.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 3.8 | 5.1 | 5.1 |
| 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: P637174

CATALOG NUMBER: GWS-SA4C-730-U-T2R-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 | 1262.2 |
| 2.5° | 1295.1 | 1235.5 | 1145.6 | 1064.5 | 1002.4 | 944.1 | 899.7 | 864.2 | 857.9 | 837.6 | 840.2 |
| 5° | 1353.4 | 1245.7 | 1079.7 | 951.7 | 861.7 | 800.9 | 750.2 | 712.2 | 695.7 | 679.2 | 666.6 |
| 7.5° | 1443.4 | 1287.5 | 1054.3 | 898.5 | 793.3 | 699.5 | 620.9 | 557.6 | 527.2 | 508.2 | 495.5 |
| 10° | 1553.6 | 1345.8 | 1055.6 | 866.8 | 710.9 | 567.7 | 460.0 | 390.3 | 357.4 | 347.2 | 346.0 |
| 12.5° | 1685.4 | 1419.3 | 1065.7 | 814.8 | 591.8 | 422.0 | 340.9 | 309.2 | 299.1 | 290.2 | 290.2 |
| 15° | 1824.8 | 1501.7 | 1065.7 | 719.8 | 451.1 | 329.5 | 295.3 | 275.0 | 262.3 | 257.2 | 254.7 |
| 17.5° | 1971.8 | 1579.0 | 1040.4 | 589.3 | 346.0 | 290.2 | 262.3 | 243.3 | 233.2 | 225.6 | 223.0 |
| 20° | 2128.9 | 1652.5 | 977.0 | 451.1 | 296.5 | 259.8 | 233.2 | 214.2 | 204.0 | 196.4 | 196.4 |
| 22.5° | 2288.6 | 1720.9 | 874.4 | 347.2 | 262.3 | 230.6 | 205.3 | 187.5 | 177.4 | 169.8 | 169.8 |
| 25° | 2436.9 | 1766.5 | 742.6 | 286.4 | 237.0 | 205.3 | 182.5 | 164.7 | 153.3 | 148.3 | 145.7 |
| 27.5° | 2575.0 | 1795.7 | 596.9 | 252.2 | 212.9 | 183.7 | 159.7 | 143.2 | 134.3 | 130.5 | 128.0 |
| 30° | 2718.2 | 1803.3 | 456.2 | 229.4 | 192.6 | 162.2 | 139.4 | 126.7 | 119.1 | 114.1 | 114.1 |
| 32.5° | 2857.6 | 1794.4 | 348.5 | 210.4 | 174.9 | 143.2 | 124.2 | 112.8 | 106.4 | 102.6 | 101.4 |
| 35° | 2999.5 | 1753.8 | 282.6 | 193.9 | 157.1 | 125.5 | 110.2 | 101.4 | 97.6 | 92.5 | 92.5 |
| 37.5° | 3154.1 | 1699.4 | 245.8 | 177.4 | 139.4 | 112.8 | 98.8 | 92.5 | 87.4 | 83.6 | 82.4 |
| 40° | 3346.7 | 1636.0 | 225.6 | 163.5 | 122.9 | 101.4 | 88.7 | 82.4 | 78.6 | 74.8 | 73.5 |
| 42.5° | 3574.8 | 1573.9 | 215.4 | 148.3 | 110.2 | 90.0 | 79.8 | 72.2 | 68.4 | 63.4 | 62.1 |
| 45° | 3898.0 | 1560.0 | 204.0 | 131.8 | 98.8 | 81.1 | 69.7 | 62.1 | 57.0 | 53.2 | 52.0 |
| 47.5° | 4417.6 | 1599.2 | 185.0 | 114.1 | 87.4 | 71.0 | 59.6 | 53.2 | 46.9 | 43.1 | 40.6 |
| 50° | 4933.3 | 1589.1 | 166.0 | 98.8 | 77.3 | 60.8 | 50.7 | 44.4 | 38.0 | 34.2 | 32.9 |
| 52.5° | 5214.6 | 1540.9 | 148.3 | 87.4 | 67.2 | 52.0 | 43.1 | 35.5 | 31.7 | 27.9 | 26.6 |
| 55° | 5469.4 | 1521.9 | 130.5 | 76.0 | 57.0 | 45.6 | 35.5 | 29.1 | 26.6 | 22.8 | 21.5 |
| 57.5° | 5968.6 | 1566.3 | 115.3 | 65.9 | 49.4 | 39.3 | 30.4 | 24.1 | 21.5 | 17.7 | 16.5 |
| 60° | 6490.7 | 1571.4 | 98.8 | 57.0 | 43.1 | 32.9 | 24.1 | 19.0 | 16.5 | 12.7 | 11.4 |
| 62.5° | 6763.2 | 1443.4 | 81.1 | 48.2 | 35.5 | 27.9 | 20.3 | 15.2 | 12.7 | 7.6 | 7.6 |
| 65° | 6535.1 | 1167.1 | 68.4 | 39.3 | 27.9 | 21.5 | 15.2 | 11.4 | 7.6 | 3.8 | 1.3 |
| 67.5° | 5783.6 | 830.0 | 57.0 | 31.7 | 20.3 | 15.2 | 11.4 | 7.6 | 1.3 | 0.0 | 0.0 |
| 70° | 4235.1 | 473.9 | 44.4 | 22.8 | 15.2 | 10.1 | 7.6 | 3.8 | 0.0 | 0.0 | 0.0 |
| 72.5° | 2602.9 | 253.4 | 32.9 | 15.2 | 11.4 | 7.6 | 6.3 | 2.5 | 0.0 | 0.0 | 0.0 |
| 75° | 987.2 | 121.7 | 20.3 | 10.1 | 8.9 | 6.3 | 3.8 | 1.3 | 0.0 | 0.0 | 0.0 |
| 77.5° | 267.4 | 59.6 | 11.4 | 7.6 | 6.3 | 3.8 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 69.7 | 27.9 | 7.6 | 5.1 | 3.8 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 24.1 | 12.7 | 3.8 | 3.8 | 2.5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 10.1 | 5.1 | 2.5 | 2.5 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 3.8 | 1.3 | 1.3 | 1.3 | 1.3 | 0.0 | 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: SP1-1908-441-2-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

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)