

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: P635792

Luminaire Tested: GWS-SA3E-740-U-T1-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P635792  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-10)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA3E-740-U-T1-W  
Description: GALLEON WALL SLIM LUMINAIRE. (3) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE I OPTICS  
Light Source: (48) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

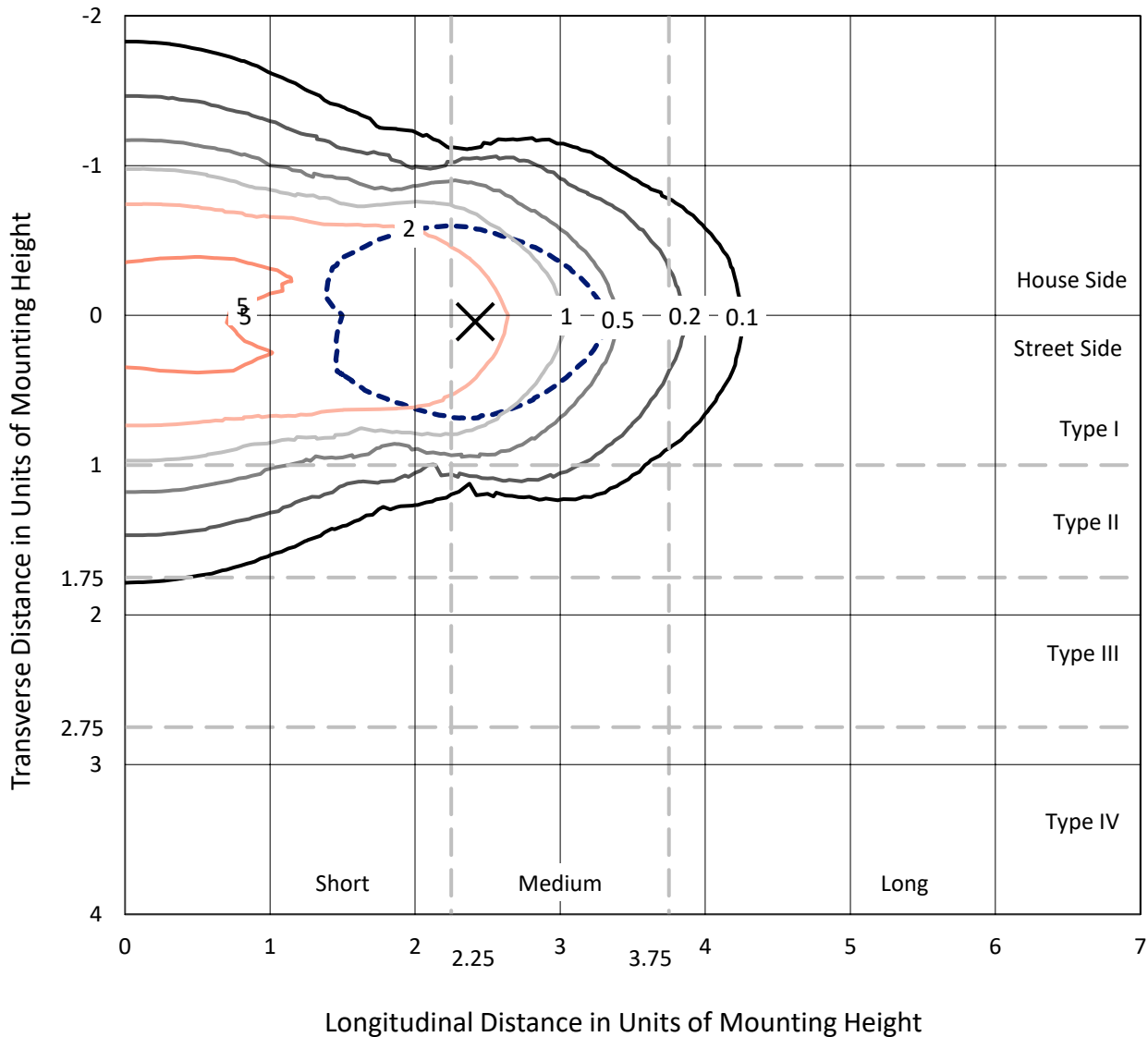
Lumens per Lamp: N/A  
Luminaire Lumens: 21951.3 lumens  
Efficiency: N/A  
Efficacy: 137.9 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 0.5' x H: 0')  
IES Classification: Type I - Medium  
BUG Rating: B4 - U0 - G4  
  
Input Watts (W): 159.2  
Input Voltage (V): 120  
Input Current (Ain): 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: P635792  
 CATALOG NUMBER: GWS-SA3E-740-U-T1-W

### Iso-Footcandle Lines of Horizontal Illumination

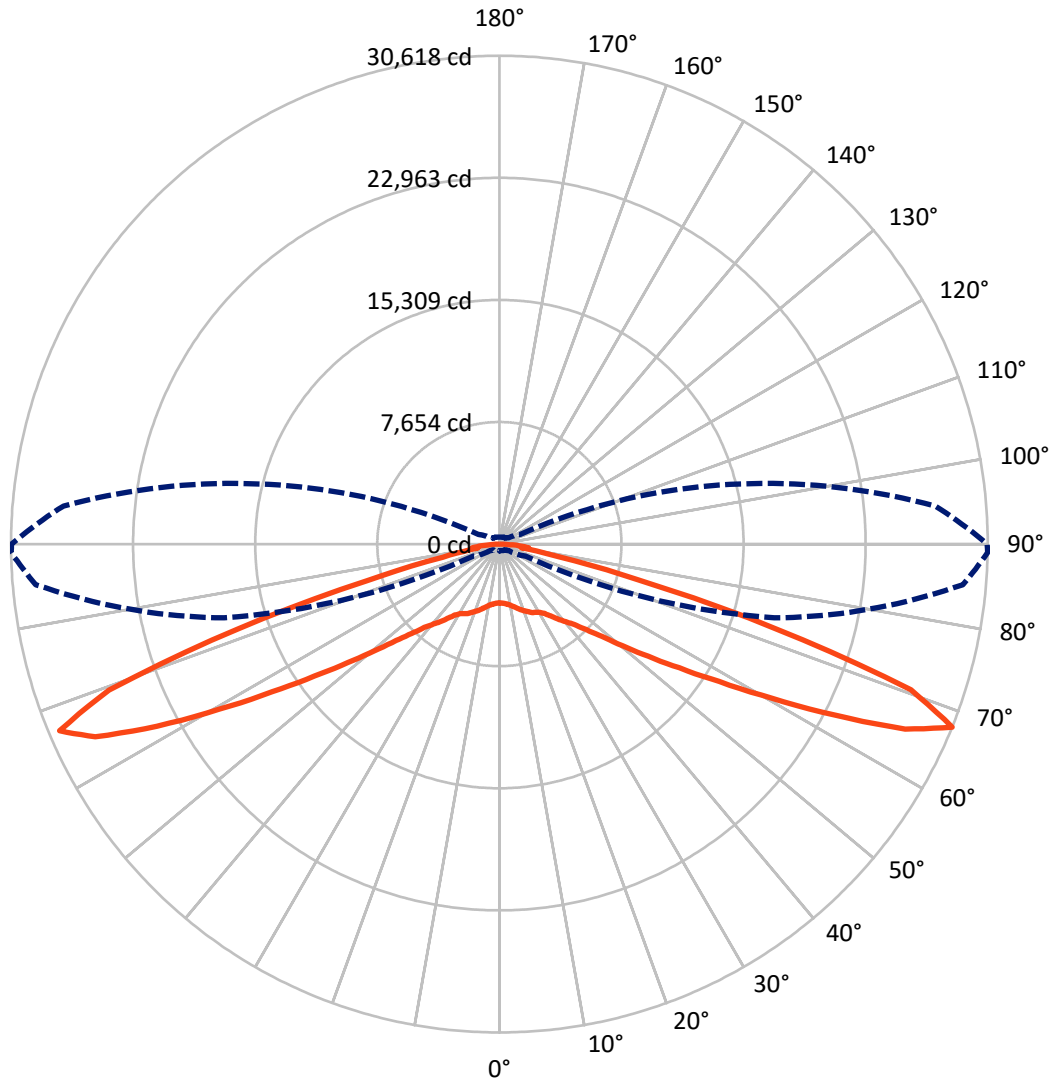
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.4 fc  
 Type I - Medium - N/A

REPORT NUMBER: P635792  
CATALOG NUMBER: GWS-SA3E-740-U-T1-W

### Luminous Intensity Polar Plot



— Vertical Plane Through 89-Deg Lateral    - - - Horizontal Cone Through 67.5-Deg Vertical

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CATALOG NUMBER: GWS-SA3E-740-U-T1-W

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 10879.5  | 0.0    | 10879.5 |
|                    | % Fixture | 49.6     | 0.0    | 49.6    |
| <b>Street Side</b> | Lumens    | 11071.9  | 0.0    | 11071.9 |
|                    | % Fixture | 50.4     | 0.0    | 50.4    |
| <b>Total</b>       | Lumens    | 21951.3  | 0.0    | 21951.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 369.6   | 1.7       |
| 10°-20°   | 1203.4  | 5.5       |
| 20°-30°   | 2034.2  | 9.3       |
| 30°-40°   | 2791.7  | 12.7      |
| 40°-50°   | 3560.1  | 16.2      |
| 50°-60°   | 4466.7  | 20.3      |
| 60°-70°   | 5387.2  | 24.5      |
| 70°-80°   | 1948.9  | 8.9       |
| 80°-90°   | 189.5   | 0.9       |
| 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°    | 21951.3 | 100.0     |
| 0°-180°   | 21951.3 | 100.0     |

**Coefficient of Utilization**







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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°     | 85°     | 89°     |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| 0°    | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3  | 3684.3  | 3684.3  |
| 2.5°  | 3695.4 | 3692.2 | 3684.3 | 3708.0 | 3703.3 | 3704.8 | 3714.3 | 3708.0 | 3697.0  | 3678.0  | 3704.8  |
| 5°    | 3799.4 | 3797.9 | 3780.5 | 3794.7 | 3778.9 | 3767.9 | 3766.3 | 3750.6 | 3738.0  | 3717.5  | 3745.8  |
| 7.5°  | 3900.3 | 3898.8 | 3884.6 | 3909.8 | 3897.2 | 3884.6 | 3870.4 | 3838.8 | 3808.9  | 3778.9  | 3810.5  |
| 10°   | 3977.6 | 3976.0 | 3972.9 | 4009.1 | 4012.3 | 4017.0 | 4010.7 | 3957.1 | 3905.1  | 3868.8  | 3900.3  |
| 12.5° | 4021.7 | 4026.5 | 4034.3 | 4100.6 | 4133.7 | 4165.2 | 4173.1 | 4128.9 | 4042.2  | 3990.2  | 4028.0  |
| 15°   | 3991.8 | 4001.2 | 4040.6 | 4160.5 | 4251.9 | 4322.8 | 4352.8 | 4316.5 | 4204.6  | 4117.9  | 4160.5  |
| 17.5° | 3848.3 | 3856.2 | 3933.4 | 4116.3 | 4318.1 | 4482.1 | 4530.9 | 4508.9 | 4384.3  | 4278.7  | 4319.7  |
| 20°   | 3649.7 | 3667.0 | 3750.6 | 4006.0 | 4307.1 | 4592.4 | 4723.3 | 4715.4 | 4579.8  | 4417.4  | 4466.3  |
| 22.5° | 3469.9 | 3490.4 | 3578.7 | 3860.9 | 4233.0 | 4620.8 | 4917.2 | 4937.7 | 4758.0  | 4556.2  | 4595.6  |
| 25°   | 3268.1 | 3287.1 | 3400.6 | 3689.1 | 4105.3 | 4598.7 | 5082.7 | 5175.7 | 4959.8  | 4715.4  | 4751.7  |
| 27.5° | 3061.6 | 3075.8 | 3187.7 | 3495.2 | 3938.2 | 4557.7 | 5213.6 | 5437.4 | 5158.4  | 4825.8  | 4851.0  |
| 30°   | 2880.3 | 2899.2 | 3001.7 | 3301.3 | 3755.3 | 4475.8 | 5320.8 | 5716.5 | 5387.0  | 4950.3  | 4970.8  |
| 32.5° | 2705.3 | 2721.1 | 2833.0 | 3110.5 | 3561.4 | 4349.6 | 5417.0 | 6044.4 | 5726.0  | 5182.1  | 5182.1  |
| 35°   | 2484.6 | 2513.0 | 2639.1 | 2927.6 | 3378.5 | 4182.5 | 5486.3 | 6425.9 | 6189.5  | 5524.2  | 5525.7  |
| 37.5° | 2281.2 | 2297.0 | 2429.4 | 2721.1 | 3186.2 | 3993.3 | 5492.6 | 6821.6 | 6775.9  | 5959.3  | 5962.4  |
| 40°   | 2049.5 | 2070.0 | 2211.9 | 2500.4 | 2965.5 | 3794.7 | 5432.7 | 7190.5 | 7390.8  | 6407.0  | 6389.7  |
| 42.5° | 1814.6 | 1844.5 | 1980.1 | 2262.3 | 2727.4 | 3551.9 | 5273.5 | 7542.1 | 8171.2  | 6925.7  | 6883.1  |
| 45°   | 1587.6 | 1606.5 | 1742.1 | 2008.5 | 2454.7 | 3261.8 | 5018.1 | 7879.5 | 9098.2  | 7714.0  | 7652.5  |
| 47.5° | 1332.2 | 1340.0 | 1480.4 | 1735.8 | 2172.5 | 2938.7 | 4652.3 | 8180.6 | 10116.6 | 8757.6  | 8652.0  |
| 50°   | 1105.1 | 1116.2 | 1226.5 | 1445.7 | 1827.2 | 2555.6 | 4196.7 | 8357.2 | 11414.1 | 10181.2 | 9998.3  |
| 52.5° | 893.9  | 904.9  | 993.2  | 1168.2 | 1510.3 | 2118.9 | 3632.3 | 8316.2 | 12730.5 | 11948.5 | 11682.1 |
| 55°   | 722.1  | 729.9  | 789.8  | 927.0  | 1188.7 | 1685.3 | 2965.5 | 7948.9 | 14191.9 | 14256.6 | 13682.7 |
| 57.5° | 610.1  | 613.3  | 654.3  | 737.8  | 928.6  | 1299.1 | 2289.1 | 7081.8 | 15724.3 | 17201.5 | 16258.7 |
| 60°   | 545.5  | 547.1  | 566.0  | 618.0  | 733.1  | 991.6  | 1677.4 | 5700.7 | 17311.9 | 20885.9 | 19593.1 |
| 62.5° | 504.5  | 504.5  | 520.3  | 550.2  | 608.5  | 763.0  | 1232.8 | 4094.2 | 18451.7 | 24895.0 | 23610.1 |
| 65°   | 465.1  | 465.1  | 476.1  | 501.3  | 532.9  | 622.7  | 925.4  | 2640.7 | 19011.4 | 28246.7 | 27961.3 |
| 67.5° | 414.6  | 416.2  | 424.1  | 450.9  | 479.3  | 520.3  | 701.6  | 1786.2 | 17849.5 | 29173.7 | 30617.8 |
| 70°   | 367.3  | 368.9  | 379.9  | 397.3  | 420.9  | 449.3  | 548.6  | 1231.3 | 12992.2 | 24297.5 | 27376.4 |
| 72.5° | 315.3  | 321.6  | 329.5  | 348.4  | 362.6  | 383.1  | 447.7  | 797.7  | 7559.5  | 15629.7 | 18097.0 |
| 75°   | 258.6  | 266.4  | 275.9  | 294.8  | 304.3  | 312.2  | 368.9  | 569.1  | 3637.1  | 7920.5  | 9019.3  |
| 77.5° | 200.2  | 208.1  | 219.1  | 236.5  | 242.8  | 252.2  | 282.2  | 411.5  | 1742.1  | 3510.9  | 3785.2  |
| 80°   | 134.0  | 137.2  | 146.6  | 167.1  | 178.1  | 184.5  | 208.1  | 280.6  | 756.7   | 1409.4  | 1396.8  |
| 82.5° | 82.0   | 83.6   | 86.7   | 99.3   | 104.1  | 110.4  | 135.6  | 171.8  | 361.0   | 1601.8  | 1836.7  |
| 85°   | 30.0   | 28.4   | 26.8   | 34.7   | 41.0   | 47.3   | 63.1   | 86.7   | 157.7   | 1100.4  | 1231.3  |
| 87.5° | 0.0    | 0.0    | 0.0    | 1.6    | 3.2    | 3.2    | 6.3    | 12.6   | 37.8    | 411.5   | 282.2   |
| 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: P635792  
 CATALOG NUMBER: GWS-SA3E-740-U-T1-W

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°    | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 3684.3  | 3684.3  | 3684.3  | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 | 3684.3 |
| 2.5°  | 3697.0  | 3679.6  | 3701.7  | 3717.5 | 3752.1 | 3764.8 | 3767.9 | 3756.9 | 3756.9 | 3738.0 | 3741.1 |
| 5°    | 3739.5  | 3728.5  | 3764.8  | 3791.6 | 3842.0 | 3860.9 | 3873.5 | 3865.6 | 3870.4 | 3857.8 | 3860.9 |
| 7.5°  | 3804.2  | 3794.7  | 3857.8  | 3909.8 | 3961.8 | 3983.9 | 3994.9 | 3988.6 | 3990.2 | 3974.4 | 3979.2 |
| 10°   | 3894.0  | 3897.2  | 3972.9  | 4040.6 | 4110.0 | 4132.1 | 4136.8 | 4117.9 | 4102.1 | 4073.8 | 4075.3 |
| 12.5° | 4017.0  | 4032.8  | 4140.0  | 4215.6 | 4286.6 | 4318.1 | 4283.4 | 4214.1 | 4149.4 | 4100.6 | 4094.2 |
| 15°   | 4151.0  | 4179.4  | 4333.9  | 4430.0 | 4507.3 | 4491.5 | 4389.1 | 4233.0 | 4105.3 | 4032.8 | 4018.6 |
| 17.5° | 4311.8  | 4354.4  | 4548.3  | 4663.4 | 4729.6 | 4628.7 | 4414.3 | 4181.0 | 4002.8 | 3905.1 | 3886.1 |
| 20°   | 4463.2  | 4530.9  | 4775.3  | 4925.1 | 4933.0 | 4705.9 | 4403.2 | 4075.3 | 3851.5 | 3731.6 | 3706.4 |
| 22.5° | 4601.9  | 4688.6  | 5013.4  | 5204.1 | 5101.6 | 4740.6 | 4335.5 | 3925.6 | 3668.6 | 3528.3 | 3506.2 |
| 25°   | 4753.2  | 4876.2  | 5290.8  | 5469.0 | 5270.3 | 4726.4 | 4193.6 | 3739.5 | 3447.9 | 3304.4 | 3288.6 |
| 27.5° | 4857.3  | 5011.8  | 5569.9  | 5740.1 | 5409.1 | 4646.0 | 4010.7 | 3536.2 | 3246.1 | 3110.5 | 3088.4 |
| 30°   | 4977.1  | 5174.2  | 5877.3  | 6035.0 | 5494.2 | 4527.8 | 3815.2 | 3347.0 | 3058.5 | 2911.8 | 2896.1 |
| 32.5° | 5194.7  | 5442.2  | 6258.8  | 6347.1 | 5521.0 | 4381.2 | 3627.6 | 3164.1 | 2863.0 | 2716.4 | 2694.3 |
| 35°   | 5544.7  | 5834.7  | 6794.8  | 6695.5 | 5500.5 | 4220.4 | 3449.4 | 2949.7 | 2662.8 | 2525.6 | 2503.5 |
| 37.5° | 5986.1  | 6347.1  | 7392.3  | 7009.2 | 5443.8 | 4043.8 | 3238.2 | 2770.0 | 2483.0 | 2344.3 | 2331.7 |
| 40°   | 6397.6  | 6842.1  | 8062.4  | 7280.4 | 5328.7 | 3826.2 | 3034.8 | 2582.4 | 2289.1 | 2142.5 | 2114.1 |
| 42.5° | 6913.1  | 7504.3  | 8838.0  | 7515.3 | 5139.5 | 3566.1 | 2806.2 | 2350.6 | 2046.3 | 1913.9 | 1879.2 |
| 45°   | 7696.6  | 8431.3  | 9739.8  | 7740.8 | 4857.3 | 3246.1 | 2519.3 | 2068.4 | 1779.9 | 1644.3 | 1617.5 |
| 47.5° | 8674.1  | 9590.0  | 10717.2 | 7874.8 | 4428.5 | 2908.7 | 2194.5 | 1770.4 | 1481.9 | 1329.0 | 1316.4 |
| 50°   | 10047.2 | 11275.3 | 11765.6 | 7851.1 | 3949.2 | 2508.3 | 1828.8 | 1415.7 | 1174.5 | 1064.2 | 1046.8 |
| 52.5° | 11719.9 | 13391.0 | 12899.2 | 7567.3 | 3440.0 | 2052.6 | 1425.2 | 1111.5 | 931.7  | 852.9  | 838.7  |
| 55°   | 13818.3 | 15924.5 | 14092.6 | 6958.8 | 2796.8 | 1571.8 | 1119.3 | 876.6  | 753.6  | 706.3  | 700.0  |
| 57.5° | 16416.4 | 19205.3 | 15241.9 | 5934.1 | 2103.1 | 1199.7 | 862.4  | 723.6  | 665.3  | 636.9  | 635.3  |
| 60°   | 19845.4 | 22687.8 | 16239.8 | 4611.3 | 1505.6 | 917.5  | 712.6  | 646.4  | 600.7  | 581.7  | 580.2  |
| 62.5° | 23922.3 | 25850.4 | 16861.0 | 3140.4 | 1131.9 | 731.5  | 627.5  | 586.5  | 559.7  | 548.6  | 547.1  |
| 65°   | 28112.7 | 27849.4 | 16564.6 | 2057.4 | 859.2  | 621.2  | 562.8  | 540.7  | 517.1  | 506.1  | 506.1  |
| 67.5° | 30587.8 | 27426.9 | 14289.7 | 1428.3 | 681.1  | 545.5  | 507.6  | 487.1  | 447.7  | 438.3  | 438.3  |
| 70°   | 27092.7 | 22224.3 | 9366.2  | 1045.2 | 551.8  | 477.7  | 441.4  | 413.1  | 397.3  | 387.8  | 386.2  |
| 72.5° | 17918.8 | 14461.5 | 4980.3  | 725.2  | 460.3  | 406.7  | 373.6  | 362.6  | 343.7  | 334.2  | 332.6  |
| 75°   | 8918.4  | 7595.7  | 2552.4  | 523.4  | 383.1  | 326.3  | 312.2  | 307.4  | 291.7  | 279.0  | 275.9  |
| 77.5° | 3717.5  | 3381.7  | 1190.3  | 379.9  | 291.7  | 263.3  | 250.7  | 250.7  | 233.3  | 219.1  | 212.8  |
| 80°   | 1401.5  | 1248.6  | 562.8   | 260.1  | 216.0  | 195.5  | 187.6  | 181.3  | 167.1  | 149.8  | 140.3  |
| 82.5° | 1874.5  | 1225.0  | 275.9   | 162.4  | 141.9  | 126.1  | 115.1  | 110.4  | 102.5  | 94.6   | 88.3   |
| 85°   | 1213.9  | 870.2   | 124.5   | 83.6   | 70.9   | 53.6   | 47.3   | 44.1   | 39.4   | 34.7   | 31.5   |
| 87.5° | 247.5   | 291.7   | 37.8    | 15.8   | 9.5    | 4.7    | 4.7    | 1.6    | 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    |



LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW, INVUE, LUMARK AND STREETWORKS

DATA VALID FOR LUMINAIRES UTILIZING SA LIGHT ENGINES

Report Number: SP1-2101-121-2

Luminaire Tested: IFLD-S-SA2A-740-U-T3R-HSS

Test Date: 03/05/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2101-121-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 03/05/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**  
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

**Spectral Parameters**

|                           |         |           |      |      |       |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K):                  | 3905    | CRI (Ra): | 71.2 | R9:  | -29.7 |
| CIE u':                   | 0.2273  | R1:       | 68.9 | R10: | 46.2  |
| CIE v':                   | 0.5024  | R2:       | 77.0 | R11: | 68.8  |
| Duv:                      | -0.0008 | R3:       | 84.0 | R12: | 45.6  |
| CIE x:                    | 0.3841  | R4:       | 71.6 | R13: | 69.5  |
| CIE y:                    | 0.3774  | R5:       | 68.9 | R14: | 90.7  |
| CIE z:                    | 0.2385  | R6:       | 68.3 |      |       |
| Peak Wavelength (nm):     | 443     | R7:       | 78.7 |      |       |
| Dominant Wavelength (nm): | 579     | R8:       | 52.2 |      |       |
| Purity:                   | 28.7    |           |      |      |       |
| Rf:                       | 71.7    |           |      |      |       |
| Rg:                       | 96.9    |           |      |      |       |



**Test Conditions**

Stabilization Time: 211M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.8/312%  
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-2

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |

REPORT NUMBER: SP1-2101-121-2

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-2

**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    | 2304          | 0.0           | 490    | 19043         | 2.7           | 620    | 97577         | 25.4          | 750    | 4830          | 0.0           | 880    | 3505          | 0.0           |
| 365    | 2150          | 0.0           | 495    | 26606         | 4.8           | 625    | 90158         | 19.9          | 755    | 4664          | 0.0           | 885    | 2991          | 0.0           |
| 370    | 2146          | 0.0           | 500    | 36376         | 8.0           | 630    | 82240         | 14.9          | 760    | 4006          | 0.0           | 890    | 2327          | 0.0           |
| 375    | 2332          | 0.0           | 505    | 47714         | 13.3          | 635    | 74361         | 11.2          | 765    | 3715          | 0.0           | 895    | 2775          | 0.0           |
| 380    | 2527          | 0.0           | 510    | 58741         | 20.2          | 640    | 66994         | 8.0           | 770    | 3696          | 0.0           | 900    | 2141          | 0.0           |
| 385    | 2304          | 0.0           | 515    | 68716         | 28.5          | 645    | 60405         | 5.8           | 775    | 3117          | 0.0           | 905    | 2421          | 0.0           |
| 390    | 2064          | 0.0           | 520    | 77136         | 37.4          | 650    | 53806         | 3.9           | 780    | 3062          | 0.0           | 910    | 2200          | 0.0           |
| 395    | 1856          | 0.0           | 525    | 83567         | 44.9          | 655    | 47610         | 2.7           | 785    | 2907          | 0.0           | 915    | 2716          | 0.0           |
| 400    | 1856          | 0.0           | 530    | 89283         | 52.6          | 660    | 42018         | 1.8           | 790    | 2655          | 0.0           | 920    | 2656          | 0.0           |
| 405    | 2374          | 0.0           | 535    | 94097         | 58.4          | 665    | 36742         | 1.2           | 795    | 2467          | 0.0           | 925    | 2671          | 0.0           |
| 410    | 4084          | 0.0           | 540    | 96845         | 63.1          | 670    | 32105         | 0.7           | 800    | 2609          | 0.0           | 930    | 3292          | 0.0           |
| 415    | 8543          | 0.0           | 545    | 100829        | 67.1          | 675    | 27946         | 0.5           | 805    | 2293          | 0.0           | 935    | 3188          | 0.0           |
| 420    | 18394         | 0.1           | 550    | 105648        | 71.8          | 680    | 24146         | 0.3           | 810    | 2188          | 0.0           | 940    | 1997          | 0.0           |
| 425    | 37987         | 0.2           | 555    | 110017        | 75.1          | 685    | 21191         | 0.2           | 815    | 2386          | 0.0           | 945    | 2623          | 0.0           |
| 430    | 67605         | 0.5           | 560    | 114586        | 77.9          | 690    | 18544         | 0.1           | 820    | 2712          | 0.0           | 950    | 2969          | 0.0           |
| 435    | 102160        | 1.2           | 565    | 118987        | 79.1          | 695    | 16058         | 0.1           | 825    | 2473          | 0.0           | 955    | 2277          | 0.0           |
| 440    | 135103        | 2.1           | 570    | 122326        | 79.5          | 700    | 14133         | 0.0           | 830    | 1969          | 0.0           | 960    | 4267          | 0.0           |
| 445    | 140126        | 2.9           | 575    | 125968        | 78.4          | 705    | 12309         | 0.0           | 835    | 1917          | 0.0           | 965    | 2034          | 0.0           |
| 450    | 102339        | 2.7           | 580    | 127613        | 75.8          | 710    | 11142         | 0.0           | 840    | 2248          | 0.0           | 970    | 3586          | 0.0           |
| 455    | 58751         | 2.0           | 585    | 129466        | 71.9          | 715    | 10143         | 0.0           | 845    | 2266          | 0.0           | 975    | 2505          | 0.0           |
| 460    | 36892         | 1.5           | 590    | 128813        | 66.6          | 720    | 9072          | 0.0           | 850    | 2558          | 0.0           | 980    | 2666          | 0.0           |
| 465    | 24637         | 1.3           | 595    | 126387        | 59.9          | 725    | 8130          | 0.0           | 855    | 2767          | 0.0           | 985    | 2934          | 0.0           |
| 470    | 16738         | 1.0           | 600    | 123477        | 53.2          | 730    | 7149          | 0.0           | 860    | 2826          | 0.0           | 990    | 4120          | 0.0           |
| 475    | 13456         | 1.1           | 605    | 118718        | 46.0          | 735    | 6311          | 0.0           | 865    | 2385          | 0.0           | 995    | 3858          | 0.0           |
| 480    | 13081         | 1.2           | 610    | 112091        | 38.5          | 740    | 5711          | 0.0           | 870    | 3194          | 0.0           | 1000   | 3405          | 0.0           |
| 485    | 14734         | 1.7           | 615    | 105039        | 31.7          | 745    | 5111          | 0.0           | 875    | 3189          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-2

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 10425.8      S/P: 1.47**

| 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    | 2304          | 0.0           | 490    | 19043         | 29.3          | 620    | 97577         | 1.2           | 750    | 4830          | 0.0           | 880    | 3505          | 0.0           |
| 365    | 2150          | 0.0           | 495    | 26606         | 43.0          | 625    | 90158         | 0.8           | 755    | 4664          | 0.0           | 885    | 2991          | 0.0           |
| 370    | 2146          | 0.0           | 500    | 36376         | 60.8          | 630    | 82240         | 0.5           | 760    | 4006          | 0.0           | 890    | 2327          | 0.0           |
| 375    | 2332          | 0.0           | 505    | 47714         | 81.1          | 635    | 74361         | 0.3           | 765    | 3715          | 0.0           | 895    | 2775          | 0.0           |
| 380    | 2527          | 0.0           | 510    | 58741         | 99.6          | 640    | 66994         | 0.2           | 770    | 3696          | 0.0           | 900    | 2141          | 0.0           |
| 385    | 2304          | 0.0           | 515    | 68716         | 113.9         | 645    | 60405         | 0.1           | 775    | 3117          | 0.0           | 905    | 2421          | 0.0           |
| 390    | 2064          | 0.0           | 520    | 77136         | 122.6         | 650    | 53806         | 0.1           | 780    | 3062          | 0.0           | 910    | 2200          | 0.0           |
| 395    | 1856          | 0.0           | 525    | 83567         | 125.0         | 655    | 47610         | 0.0           | 785    | 2907          | 0.0           | 915    | 2716          | 0.0           |
| 400    | 1856          | 0.0           | 530    | 89283         | 123.1         | 660    | 42018         | 0.0           | 790    | 2655          | 0.0           | 920    | 2656          | 0.0           |
| 405    | 2374          | 0.1           | 535    | 94097         | 117.3         | 665    | 36742         | 0.0           | 795    | 2467          | 0.0           | 925    | 2671          | 0.0           |
| 410    | 4084          | 0.2           | 540    | 96845         | 107.0         | 670    | 32105         | 0.0           | 800    | 2609          | 0.0           | 930    | 3292          | 0.0           |
| 415    | 8543          | 0.9           | 545    | 100829        | 96.7          | 675    | 27946         | 0.0           | 805    | 2293          | 0.0           | 935    | 3188          | 0.0           |
| 420    | 18394         | 3.0           | 550    | 105648        | 86.4          | 680    | 24146         | 0.0           | 810    | 2188          | 0.0           | 940    | 1997          | 0.0           |
| 425    | 37987         | 9.3           | 555    | 110017        | 75.2          | 685    | 21191         | 0.0           | 815    | 2386          | 0.0           | 945    | 2623          | 0.0           |
| 430    | 67605         | 23.0          | 560    | 114586        | 64.0          | 690    | 18544         | 0.0           | 820    | 2712          | 0.0           | 950    | 2969          | 0.0           |
| 435    | 102160        | 45.7          | 565    | 118987        | 53.4          | 695    | 16058         | 0.0           | 825    | 2473          | 0.0           | 955    | 2277          | 0.0           |
| 440    | 135103        | 75.5          | 570    | 122326        | 43.2          | 700    | 14133         | 0.0           | 830    | 1969          | 0.0           | 960    | 4267          | 0.0           |
| 445    | 140126        | 93.8          | 575    | 125968        | 34.3          | 705    | 12309         | 0.0           | 835    | 1917          | 0.0           | 965    | 2034          | 0.0           |
| 450    | 102339        | 79.3          | 580    | 127613        | 26.3          | 710    | 11142         | 0.0           | 840    | 2248          | 0.0           | 970    | 3586          | 0.0           |
| 455    | 58751         | 51.3          | 585    | 129466        | 19.8          | 715    | 10143         | 0.0           | 845    | 2266          | 0.0           | 975    | 2505          | 0.0           |
| 460    | 36892         | 35.6          | 590    | 128813        | 14.3          | 720    | 9072          | 0.0           | 850    | 2558          | 0.0           | 980    | 2666          | 0.0           |
| 465    | 24637         | 26.0          | 595    | 126387        | 10.1          | 725    | 8130          | 0.0           | 855    | 2767          | 0.0           | 985    | 2934          | 0.0           |
| 470    | 16738         | 19.3          | 600    | 123477        | 7.0           | 730    | 7149          | 0.0           | 860    | 2826          | 0.0           | 990    | 4120          | 0.0           |
| 475    | 13456         | 16.8          | 605    | 118718        | 4.7           | 735    | 6311          | 0.0           | 865    | 2385          | 0.0           | 995    | 3858          | 0.0           |
| 480    | 13081         | 17.7          | 610    | 112091        | 3.0           | 740    | 5711          | 0.0           | 870    | 3194          | 0.0           | 1000   | 3405          | 0.0           |
| 485    | 14734         | 21.4          | 615    | 105039        | 1.9           | 745    | 5111          | 0.0           | 875    | 3189          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-2

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 3927.2 M/P: 0.55**

| 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    | 2304          | 0.0           | 490    | 19043         | 15.8          | 620    | 97577         | 0.1           | 750    | 4830          | 0.0           | 880    | 3505          | 0.0           |
| 365    | 2150          | 0.0           | 495    | 26606         | 22.0          | 625    | 90158         | 0.0           | 755    | 4664          | 0.0           | 885    | 2991          | 0.0           |
| 370    | 2146          | 0.0           | 500    | 36376         | 29.2          | 630    | 82240         | 0.0           | 760    | 4006          | 0.0           | 890    | 2327          | 0.0           |
| 375    | 2332          | 0.0           | 505    | 47714         | 36.6          | 635    | 74361         | 0.0           | 765    | 3715          | 0.0           | 895    | 2775          | 0.0           |
| 380    | 2527          | 0.0           | 510    | 58741         | 42.2          | 640    | 66994         | 0.0           | 770    | 3696          | 0.0           | 900    | 2141          | 0.0           |
| 385    | 2304          | 0.0           | 515    | 68716         | 44.9          | 645    | 60405         | 0.0           | 775    | 3117          | 0.0           | 905    | 2421          | 0.0           |
| 390    | 2064          | 0.0           | 520    | 77136         | 44.9          | 650    | 53806         | 0.0           | 780    | 3062          | 0.0           | 910    | 2200          | 0.0           |
| 395    | 1856          | 0.0           | 525    | 83567         | 42.4          | 655    | 47610         | 0.0           | 785    | 2907          | 0.0           | 915    | 2716          | 0.0           |
| 400    | 1856          | 0.0           | 530    | 89283         | 38.6          | 660    | 42018         | 0.0           | 790    | 2655          | 0.0           | 920    | 2656          | 0.0           |
| 405    | 2374          | 0.0           | 535    | 94097         | 33.9          | 665    | 36742         | 0.0           | 795    | 2467          | 0.0           | 925    | 2671          | 0.0           |
| 410    | 4084          | 0.2           | 540    | 96845         | 28.3          | 670    | 32105         | 0.0           | 800    | 2609          | 0.0           | 930    | 3292          | 0.0           |
| 415    | 8543          | 0.6           | 545    | 100829        | 23.4          | 675    | 27946         | 0.0           | 805    | 2293          | 0.0           | 935    | 3188          | 0.0           |
| 420    | 18394         | 2.1           | 550    | 105648        | 19.0          | 680    | 24146         | 0.0           | 810    | 2188          | 0.0           | 940    | 1997          | 0.0           |
| 425    | 37987         | 5.9           | 555    | 110017        | 14.8          | 685    | 21191         | 0.0           | 815    | 2386          | 0.0           | 945    | 2623          | 0.0           |
| 430    | 67605         | 14.3          | 560    | 114586        | 11.3          | 690    | 18544         | 0.0           | 820    | 2712          | 0.0           | 950    | 2969          | 0.0           |
| 435    | 102160        | 27.3          | 565    | 118987        | 8.4           | 695    | 16058         | 0.0           | 825    | 2473          | 0.0           | 955    | 2277          | 0.0           |
| 440    | 135103        | 45.1          | 570    | 122326        | 6.0           | 700    | 14133         | 0.0           | 830    | 1969          | 0.0           | 960    | 4267          | 0.0           |
| 445    | 140126        | 55.3          | 575    | 125968        | 4.2           | 705    | 12309         | 0.0           | 835    | 1917          | 0.0           | 965    | 2034          | 0.0           |
| 450    | 102339        | 47.2          | 580    | 127613        | 2.9           | 710    | 11142         | 0.0           | 840    | 2248          | 0.0           | 970    | 3586          | 0.0           |
| 455    | 58751         | 30.8          | 585    | 129466        | 1.9           | 715    | 10143         | 0.0           | 845    | 2266          | 0.0           | 975    | 2505          | 0.0           |
| 460    | 36892         | 21.7          | 590    | 128813        | 1.3           | 720    | 9072          | 0.0           | 850    | 2558          | 0.0           | 980    | 2666          | 0.0           |
| 465    | 24637         | 16.1          | 595    | 126387        | 0.8           | 725    | 8130          | 0.0           | 855    | 2767          | 0.0           | 985    | 2934          | 0.0           |
| 470    | 16738         | 12.0          | 600    | 123477        | 0.5           | 730    | 7149          | 0.0           | 860    | 2826          | 0.0           | 990    | 4120          | 0.0           |
| 475    | 13456         | 10.3          | 605    | 118718        | 0.3           | 735    | 6311          | 0.0           | 865    | 2385          | 0.0           | 995    | 3858          | 0.0           |
| 480    | 13081         | 10.5          | 610    | 112091        | 0.2           | 740    | 5711          | 0.0           | 870    | 3194          | 0.0           | 1000   | 3405          | 0.0           |
| 485    | 14734         | 12.1          | 615    | 105039        | 0.1           | 745    | 5111          | 0.0           | 875    | 3189          | 0.0           |        |               |               |

**Summary**

$R_f = 71.7$   
 $R_g = 96.9$   
 CIE  $R_a = 71.2$   
 $R_g = -29.7$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)