

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: INVUE

Report Number: P868821

Luminaire Tested: **EMM2-HSN-SA3A-740-U-T2R**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868821
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-SA3A-740-U-T2R
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 130W 70CRI 4000K
FITXURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC
Light Source: (30) 4000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

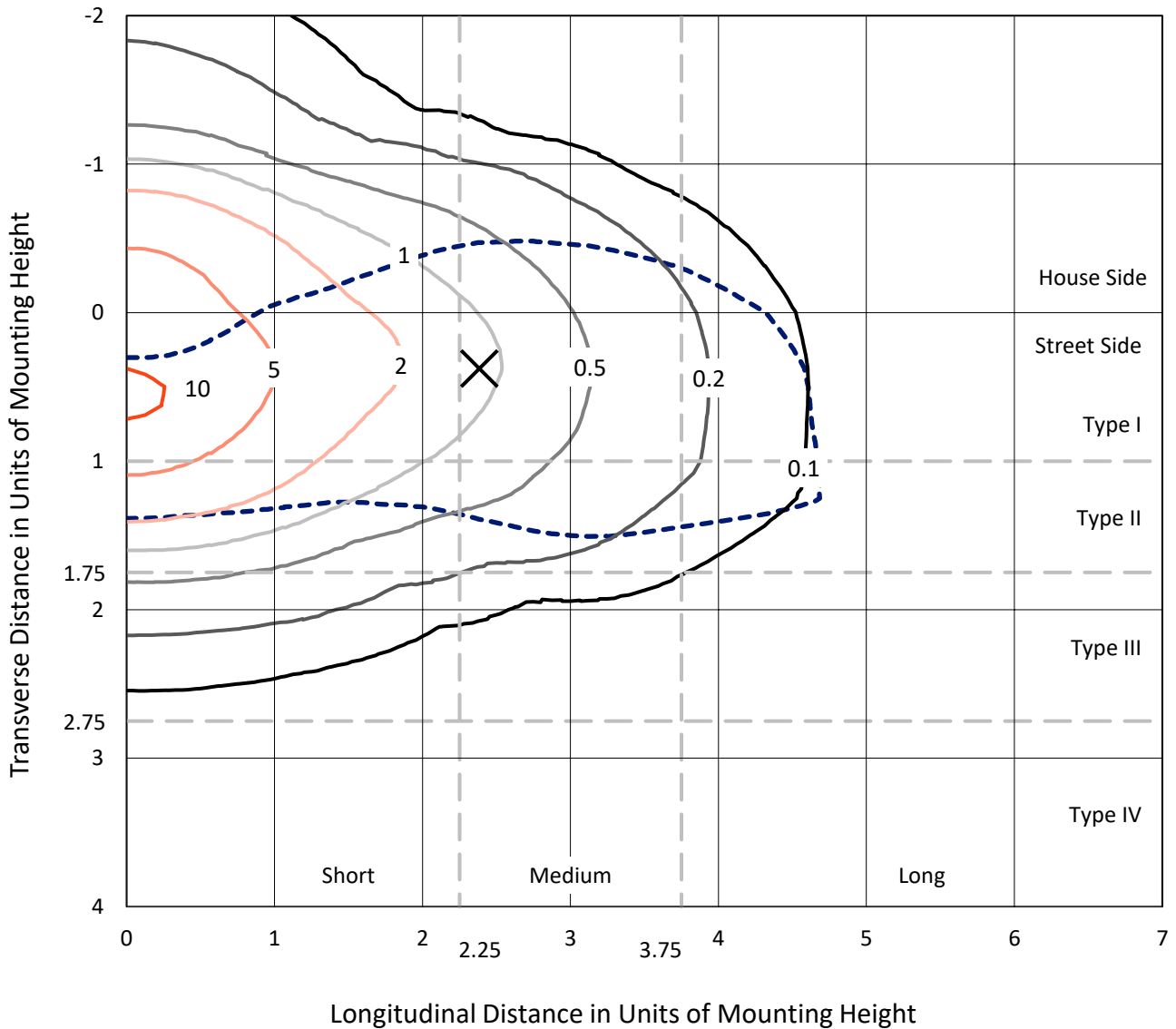
Lumens per Lamp: N/A
Luminaire Lumens: 16971.6 lumens
Efficiency: N/A
Efficacy: 150.2 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B3 - U0 - G3

Input Watts (W): 113
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 7.77%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868821
 CATALOG NUMBER: EMM2-HSN-SA3A-740-U-T2R

Iso-Footcandle Lines of Horizontal Illumination

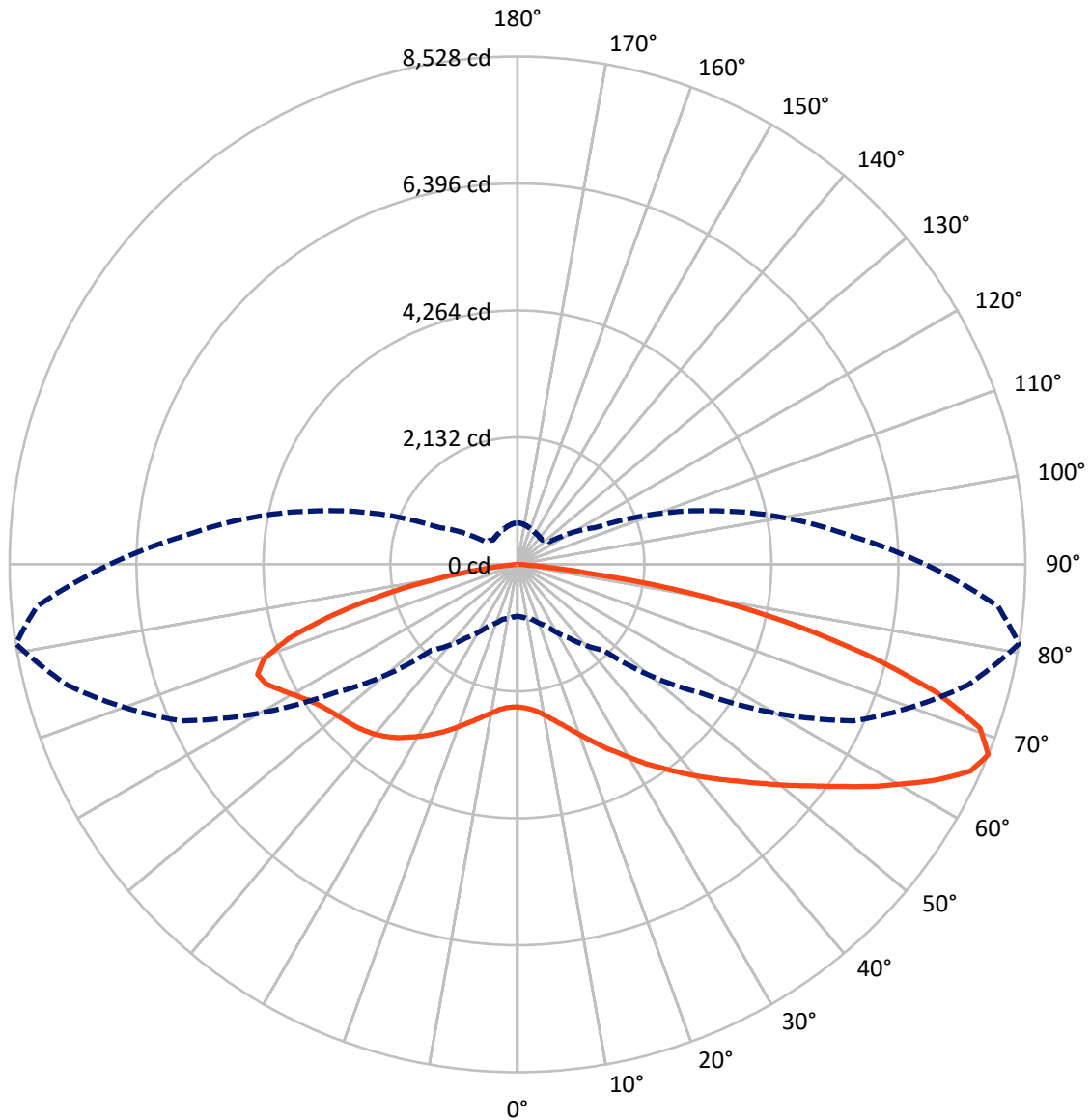
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 10.8 fc
 Type II - Medium - N/A

REPORT NUMBER: P868821
CATALOG NUMBER: EMM2-HSN-SA3A-740-U-T2R

Luminous Intensity Polar Plot



— Vertical Plane Through 81-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

REPORT NUMBER: P868821
 CATALOG NUMBER: EMM2-HSN-SA3A-740-U-T2R

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 5200.5 | 0.0 | 5200.5 |
| | % Fixture | 30.6 | 0.0 | 30.6 |
| Street Side | Lumens | 11771.1 | 0.0 | 11771.1 |
| | % Fixture | 69.4 | 0.0 | 69.4 |
| Total | Lumens | 16971.6 | 0.0 | 16971.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 244.3 | 1.4 |
| 10°-20° | 867.4 | 5.1 |
| 20°-30° | 1727.5 | 10.2 |
| 30°-40° | 2714.0 | 16.0 |
| 40°-50° | 3365.8 | 19.8 |
| 50°-60° | 3290.3 | 19.4 |
| 60°-70° | 2766.9 | 16.3 |
| 70°-80° | 1758.1 | 10.4 |
| 80°-90° | 237.3 | 1.4 |
| 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° | 16971.6 | 100.0 |
| 0°-180° | 16971.6 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P868821

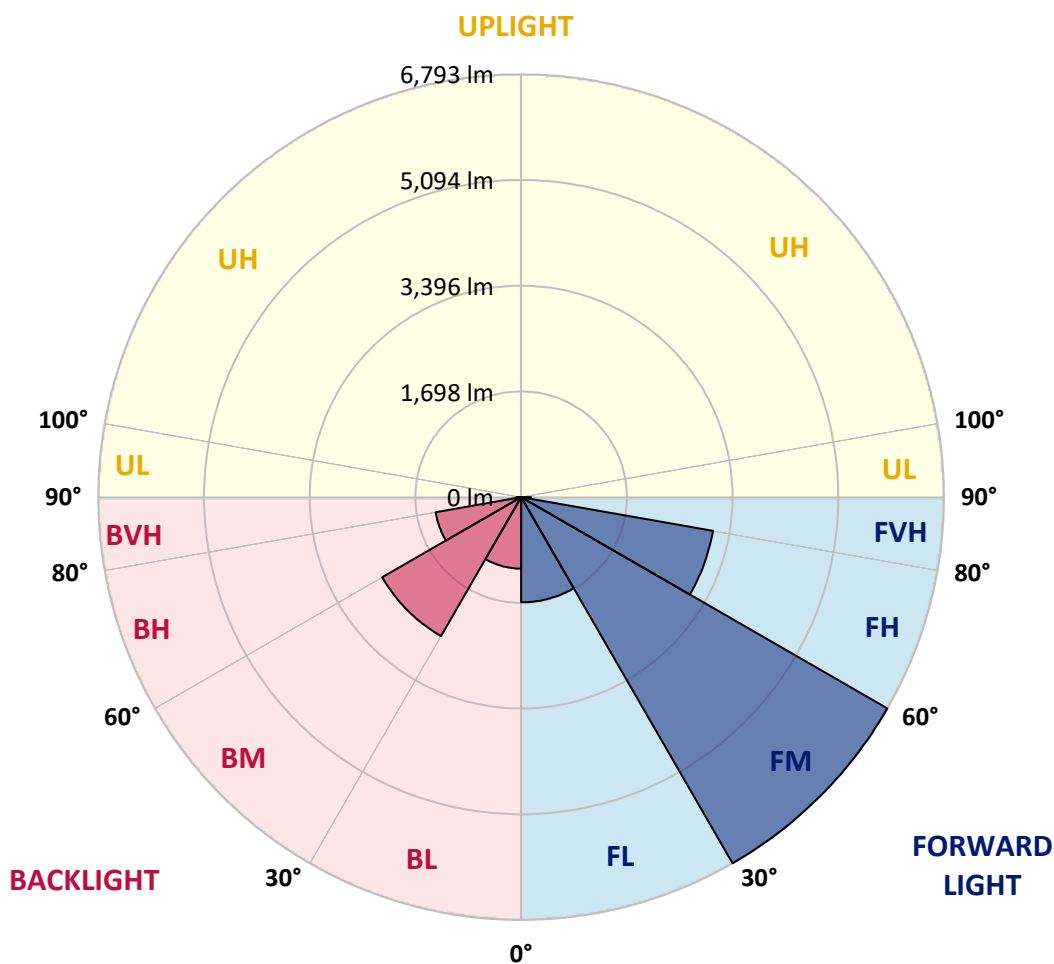
CATALOG NUMBER: EMM2-HSN-SA3A-740-U-T2R

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1690.5 | 10.0 | | | |
| FM (30°-60°) | 6792.6 | 40.0 | | | |
| FH (60°-80°) | 3129.1 | 18.4 | | | G2/5000 |
| FVH (80°-90°) | 159.0 | 0.9 | | | G2/225 |
| BL (0°-30°) | 1148.7 | 6.8 | B3/2500 | | |
| BM (30°-60°) | 2577.5 | 15.2 | B3/5000 | | |
| BH (60°-80°) | 1396.0 | 8.2 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 78.3 | 0.5 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type II Medium





REPORT NUMBER: P868821

CATALOG NUMBER: EMM2-HSN-SA3A-740-U-T2R

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 81° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 |
| 2.5° | 2480.2 | 2476.9 | 2476.9 | 2449.9 | 2449.9 | 2443.2 | 2446.6 | 2426.4 | 2416.3 | 2412.9 | 2409.6 |
| 5° | 2658.6 | 2658.6 | 2638.4 | 2621.6 | 2587.9 | 2557.6 | 2530.7 | 2490.3 | 2460.0 | 2446.6 | 2436.5 |
| 7.5° | 2927.8 | 2907.6 | 2900.9 | 2850.4 | 2779.7 | 2719.2 | 2665.3 | 2577.8 | 2520.6 | 2500.4 | 2487.0 |
| 10° | 3257.6 | 3230.7 | 3180.2 | 3123.0 | 3032.1 | 2941.3 | 2833.6 | 2715.8 | 2621.6 | 2581.2 | 2564.4 |
| 12.5° | 3597.5 | 3560.5 | 3489.8 | 3436.0 | 3318.2 | 3180.2 | 3028.8 | 2867.2 | 2736.0 | 2678.8 | 2648.5 |
| 15° | 3971.1 | 3950.9 | 3866.7 | 3759.0 | 3621.1 | 3425.9 | 3237.4 | 3038.9 | 2870.6 | 2789.8 | 2739.4 |
| 17.5° | 4374.9 | 4344.6 | 4253.7 | 4122.5 | 3927.3 | 3695.1 | 3476.4 | 3220.6 | 3025.4 | 2921.1 | 2863.9 |
| 20° | 4772.0 | 4765.3 | 4630.7 | 4506.1 | 4277.3 | 3987.9 | 3705.2 | 3436.0 | 3190.3 | 3069.2 | 2995.1 |
| 22.5° | 5216.2 | 5172.5 | 5054.7 | 4879.7 | 4607.1 | 4341.2 | 4008.1 | 3658.1 | 3368.7 | 3227.3 | 3143.2 |
| 25° | 5677.3 | 5673.9 | 5529.2 | 5313.8 | 4994.1 | 4657.6 | 4297.5 | 3910.5 | 3580.7 | 3409.1 | 3298.0 |
| 27.5° | 6249.4 | 6205.6 | 6020.5 | 5774.9 | 5404.7 | 5017.7 | 4600.4 | 4173.0 | 3782.6 | 3577.3 | 3442.7 |
| 30° | 6750.8 | 6737.3 | 6528.7 | 6252.7 | 5838.8 | 5377.8 | 4926.8 | 4469.1 | 4021.5 | 3779.2 | 3631.2 |
| 32.5° | 7158.0 | 7141.2 | 6962.8 | 6686.9 | 6242.6 | 5764.8 | 5246.5 | 4748.4 | 4260.5 | 3998.0 | 3802.8 |
| 35° | 7497.9 | 7471.0 | 7285.9 | 7009.9 | 6626.3 | 6141.7 | 5589.8 | 5041.2 | 4523.0 | 4203.3 | 4018.2 |
| 37.5° | 7632.5 | 7609.0 | 7457.5 | 7228.7 | 6875.3 | 6431.1 | 5899.4 | 5364.3 | 4785.5 | 4435.5 | 4226.8 |
| 40° | 7582.0 | 7568.6 | 7460.9 | 7302.7 | 7033.5 | 6663.3 | 6195.5 | 5700.8 | 5081.6 | 4681.1 | 4432.1 |
| 42.5° | 7343.1 | 7343.1 | 7275.8 | 7195.0 | 7060.4 | 6794.5 | 6458.0 | 6023.9 | 5367.7 | 4926.8 | 4627.3 |
| 45° | 7006.6 | 6993.1 | 6969.5 | 6939.3 | 6919.1 | 6818.1 | 6629.6 | 6303.2 | 5684.0 | 5196.0 | 4862.9 |
| 47.5° | 6559.0 | 6569.1 | 6552.2 | 6565.7 | 6649.8 | 6713.8 | 6703.7 | 6562.3 | 6007.1 | 5492.2 | 5095.1 |
| 50° | 5855.6 | 5902.7 | 5956.6 | 6114.8 | 6286.4 | 6464.7 | 6629.6 | 6747.4 | 6387.3 | 5828.7 | 5364.3 |
| 52.5° | 4984.0 | 5004.2 | 5148.9 | 5522.5 | 5889.3 | 6124.9 | 6437.8 | 6831.6 | 6723.9 | 6178.7 | 5680.6 |
| 55° | 3910.5 | 3947.5 | 4166.2 | 4694.6 | 5347.5 | 5798.4 | 6165.2 | 6794.5 | 7067.1 | 6579.2 | 6050.8 |
| 57.5° | 2803.3 | 2826.9 | 3176.8 | 3722.0 | 4573.4 | 5330.6 | 5855.6 | 6646.5 | 7343.1 | 7033.5 | 6431.1 |
| 60° | 1992.3 | 2036.0 | 2261.5 | 2793.2 | 3611.0 | 4684.5 | 5572.9 | 6431.1 | 7598.9 | 7477.7 | 6929.2 |
| 62.5° | 1470.6 | 1494.2 | 1652.4 | 2039.4 | 2712.4 | 3802.8 | 5206.1 | 6272.9 | 7767.1 | 7955.6 | 7427.2 |
| 65° | 1107.2 | 1117.3 | 1225.0 | 1490.8 | 2029.3 | 2803.3 | 4627.3 | 6242.6 | 7861.4 | 8362.8 | 7868.1 |
| 67.5° | 871.6 | 888.4 | 955.7 | 1137.5 | 1511.0 | 2039.4 | 3769.1 | 6222.4 | 7827.7 | 8527.7 | 8100.3 |
| 70° | 733.6 | 737.0 | 787.5 | 888.4 | 1130.7 | 1467.3 | 2816.8 | 5919.6 | 7639.2 | 8238.3 | 7884.9 |
| 72.5° | 636.0 | 636.0 | 659.6 | 740.4 | 908.6 | 1110.6 | 1918.2 | 5196.0 | 7161.4 | 7359.9 | 7137.8 |
| 75° | 514.9 | 511.5 | 551.9 | 629.3 | 730.3 | 854.8 | 1288.9 | 3934.0 | 6158.5 | 6057.5 | 5875.8 |
| 77.5° | 447.6 | 444.2 | 477.9 | 545.2 | 602.4 | 683.2 | 881.7 | 2554.3 | 4846.0 | 4543.2 | 4428.7 |
| 80° | 383.6 | 373.5 | 400.5 | 464.4 | 494.7 | 531.7 | 609.1 | 1487.5 | 3166.8 | 2978.3 | 2840.3 |
| 82.5° | 289.4 | 265.9 | 259.1 | 313.0 | 333.2 | 309.6 | 309.6 | 521.6 | 1150.9 | 1161.0 | 1073.5 |
| 85° | 23.6 | 26.9 | 33.7 | 40.4 | 57.2 | 63.9 | 67.3 | 111.1 | 171.6 | 164.9 | 168.3 |
| 87.5° | 3.4 | 3.4 | 3.4 | 6.7 | 6.7 | 10.1 | 10.1 | 10.1 | 13.5 | 13.5 | 13.5 |
| 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: P868821

CATALOG NUMBER: EMM2-HSN-SA3A-740-U-T2R

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 | 2396.1 |
| 2.5° | 2406.2 | 2399.5 | 2392.7 | 2392.7 | 2392.7 | 2386.0 | 2382.6 | 2382.6 | 2379.3 | 2369.2 | 2365.8 |
| 5° | 2429.7 | 2419.7 | 2409.6 | 2409.6 | 2409.6 | 2406.2 | 2402.8 | 2406.2 | 2402.8 | 2392.7 | 2389.4 |
| 7.5° | 2476.9 | 2463.4 | 2449.9 | 2449.9 | 2456.7 | 2453.3 | 2453.3 | 2456.7 | 2453.3 | 2443.2 | 2439.8 |
| 10° | 2544.2 | 2524.0 | 2517.2 | 2517.2 | 2524.0 | 2520.6 | 2517.2 | 2517.2 | 2513.9 | 2497.1 | 2503.8 |
| 12.5° | 2618.2 | 2598.0 | 2591.3 | 2594.6 | 2591.3 | 2584.6 | 2587.9 | 2577.8 | 2574.5 | 2547.5 | 2544.2 |
| 15° | 2712.4 | 2688.9 | 2675.4 | 2678.8 | 2668.7 | 2655.2 | 2641.8 | 2635.0 | 2621.6 | 2598.0 | 2591.3 |
| 17.5° | 2820.1 | 2783.1 | 2766.3 | 2766.3 | 2746.1 | 2719.2 | 2699.0 | 2678.8 | 2658.6 | 2631.7 | 2624.9 |
| 20° | 2924.4 | 2890.8 | 2863.9 | 2857.1 | 2816.8 | 2773.0 | 2736.0 | 2702.3 | 2678.8 | 2648.5 | 2641.8 |
| 22.5° | 3055.7 | 3008.6 | 2971.6 | 2941.3 | 2880.7 | 2810.0 | 2752.8 | 2705.7 | 2672.1 | 2638.4 | 2628.3 |
| 25° | 3193.7 | 3126.4 | 3065.8 | 3008.6 | 2924.4 | 2823.5 | 2742.7 | 2675.4 | 2631.7 | 2594.6 | 2587.9 |
| 27.5° | 3331.7 | 3244.2 | 3156.7 | 3065.8 | 2937.9 | 2806.7 | 2692.2 | 2611.5 | 2554.3 | 2507.2 | 2500.4 |
| 30° | 3479.7 | 3372.0 | 3234.1 | 3102.8 | 2934.5 | 2762.9 | 2618.2 | 2503.8 | 2436.5 | 2382.6 | 2375.9 |
| 32.5° | 3631.2 | 3496.6 | 3308.1 | 3129.7 | 2917.7 | 2699.0 | 2510.5 | 2389.4 | 2305.2 | 2244.7 | 2227.8 |
| 35° | 3799.4 | 3634.5 | 3375.4 | 3139.8 | 2870.6 | 2604.7 | 2396.1 | 2244.7 | 2147.1 | 2086.5 | 2073.0 |
| 37.5° | 3971.1 | 3762.4 | 3419.1 | 3133.1 | 2803.3 | 2493.7 | 2248.0 | 2093.2 | 1978.8 | 1894.7 | 1881.2 |
| 40° | 4146.1 | 3880.2 | 3446.1 | 3099.4 | 2709.1 | 2355.7 | 2110.0 | 1921.6 | 1756.7 | 1679.3 | 1642.3 |
| 42.5° | 4307.6 | 3987.9 | 3459.5 | 3052.3 | 2604.7 | 2211.0 | 1928.3 | 1682.7 | 1527.8 | 1443.7 | 1460.5 |
| 45° | 4475.9 | 4088.8 | 3462.9 | 2995.1 | 2466.8 | 2025.9 | 1699.5 | 1470.6 | 1315.8 | 1251.9 | 1245.2 |
| 47.5° | 4620.6 | 4173.0 | 3456.2 | 2914.4 | 2312.0 | 1813.9 | 1460.5 | 1241.8 | 1127.4 | 1066.8 | 1060.1 |
| 50° | 4812.4 | 4267.2 | 3446.1 | 2820.1 | 2110.0 | 1571.6 | 1238.4 | 1060.1 | 955.7 | 908.6 | 905.3 |
| 52.5° | 5004.2 | 4371.5 | 3439.3 | 2688.9 | 1898.0 | 1342.8 | 1036.5 | 895.2 | 824.5 | 800.9 | 794.2 |
| 55° | 5256.6 | 4499.4 | 3442.7 | 2537.4 | 1655.7 | 1107.2 | 878.3 | 780.8 | 743.7 | 733.6 | 733.6 |
| 57.5° | 5546.0 | 4664.3 | 3462.9 | 2369.2 | 1403.3 | 915.4 | 763.9 | 720.2 | 716.8 | 723.5 | 726.9 |
| 60° | 5896.0 | 4883.1 | 3503.3 | 2194.2 | 1171.1 | 774.0 | 696.6 | 693.3 | 703.3 | 726.9 | 733.6 |
| 62.5° | 6289.8 | 5122.0 | 3553.8 | 1965.3 | 949.0 | 679.8 | 659.6 | 673.1 | 686.5 | 713.4 | 716.8 |
| 65° | 6636.4 | 5391.2 | 3584.0 | 1746.6 | 794.2 | 625.9 | 636.0 | 642.8 | 676.4 | 713.4 | 713.4 |
| 67.5° | 6845.0 | 5586.4 | 3469.6 | 1470.6 | 663.0 | 578.8 | 599.0 | 619.2 | 656.2 | 689.9 | 696.6 |
| 70° | 6774.4 | 5522.5 | 3079.3 | 1140.8 | 562.0 | 535.1 | 558.6 | 588.9 | 625.9 | 666.3 | 686.5 |
| 72.5° | 6283.0 | 5068.1 | 2500.4 | 831.2 | 488.0 | 494.7 | 525.0 | 565.4 | 599.0 | 642.8 | 669.7 |
| 75° | 5253.2 | 4230.2 | 1803.8 | 599.0 | 427.4 | 454.3 | 501.4 | 535.1 | 558.6 | 568.7 | 572.1 |
| 77.5° | 3987.9 | 3109.5 | 1228.3 | 447.6 | 370.2 | 407.2 | 457.7 | 494.7 | 501.4 | 508.2 | 514.9 |
| 80° | 2604.7 | 1978.8 | 693.3 | 313.0 | 282.7 | 333.2 | 373.5 | 413.9 | 400.5 | 420.7 | 427.4 |
| 82.5° | 1100.5 | 864.9 | 316.3 | 154.8 | 131.2 | 141.3 | 151.4 | 134.6 | 124.5 | 124.5 | 107.7 |
| 85° | 144.7 | 111.1 | 47.1 | 20.2 | 16.8 | 10.1 | 10.1 | 10.1 | 6.7 | 6.7 | 6.7 |
| 87.5° | 13.5 | 13.5 | 10.1 | 10.1 | 6.7 | 6.7 | 3.4 | 6.7 | 3.4 | 3.4 | 3.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-5

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-740-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-740-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-5
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-40-740-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3915
 CIE u': 0.2262
 CIE v': 0.5044
 Duv: 0.0010
 CIE x: 0.3850
 CIE y: 0.3816
 CIE z: 0.2334
 Peak Wavelength (nm): 449
 Dominant Wavelength (nm): 578
 Purity: 30.05482
 R_f: 73.2
 R_g: 93.9

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.0 | | |
| R1: | 67.6 | R9: | -38.4 |
| R2: | 78.3 | R10: | 48.9 |
| R3: | 87.1 | R11: | 65.3 |
| R4: | 69.7 | R12: | 40.4 |
| R5: | 67.4 | R13: | 69.3 |
| R6: | 69.3 | R14: | 92.6 |
| R7: | 79.7 | R15: | 59.9 |
| R8: | 48.7 | | |



Test Conditions

Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-5

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2407-157-5

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: SP1-2407-157-5

Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-5

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.49

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|
| 360 | 0 | NR | 490 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.88

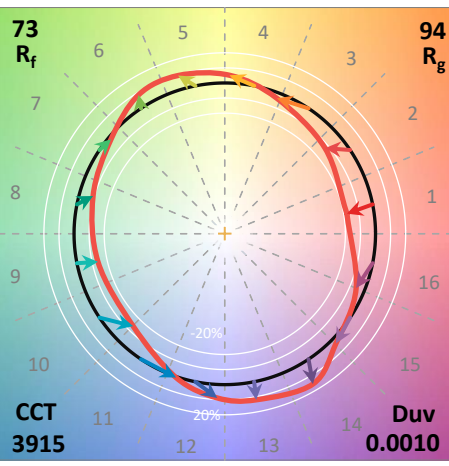
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 73.2$
 $R_g = 93.9$
 $CIE R_a = 71.0$
 $R_g = -38.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 88 | CES76 = 50 |
| CES02 = 61 | CES27 = 88 | CES52 = 87 | CES77 = 69 |
| CES03 = 30 | CES28 = 81 | CES53 = 77 | CES78 = 53 |
| CES04 = 70 | CES29 = 65 | CES54 = 84 | CES79 = 81 |
| CES05 = 47 | CES30 = 81 | CES55 = 83 | CES80 = 78 |
| CES06 = 50 | CES31 = 69 | CES56 = 73 | CES81 = 77 |
| CES07 = 40 | CES32 = 60 | CES57 = 72 | CES82 = 91 |
| CES08 = 39 | CES33 = 76 | CES58 = 73 | CES83 = 89 |
| CES09 = 29 | CES34 = 70 | CES59 = 85 | CES84 = 86 |
| CES10 = 74 | CES35 = 83 | CES60 = 89 | CES85 = 77 |
| CES11 = 57 | CES36 = 91 | CES61 = 81 | CES86 = 71 |
| CES12 = 63 | CES37 = 79 | CES62 = 85 | CES87 = 76 |
| CES13 = 42 | CES38 = 92 | CES63 = 72 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 64 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 61 | CES90 = 79 |
| CES16 = 46 | CES41 = 93 | CES66 = 57 | CES91 = 74 |
| CES17 = 49 | CES42 = 80 | CES67 = 54 | CES92 = 57 |
| CES18 = 56 | CES43 = 76 | CES68 = 63 | CES93 = 74 |
| CES19 = 72 | CES44 = 99 | CES69 = 73 | CES94 = 51 |
| CES20 = 65 | CES45 = 85 | CES70 = 55 | CES95 = 65 |
| CES21 = 86 | CES46 = 82 | CES71 = 48 | CES96 = 76 |
| CES22 = 78 | CES47 = 86 | CES72 = 83 | CES97 = 84 |
| CES23 = 92 | CES48 = 77 | CES73 = 45 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 93 | CES99 = 62 |
| CES25 = 72 | CES50 = 88 | CES75 = 51 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)