

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: STREETWORKS

Report Number: P867550

Luminaire Tested: **MEM2-HTN-SA-90-730-U-T2U**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867550
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-90-730-U-T2U
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 90W 70CRI 3000K
FITXURE w/ TYPE II URBAN DISTRIBUTION OPTIC
Light Source: (20) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

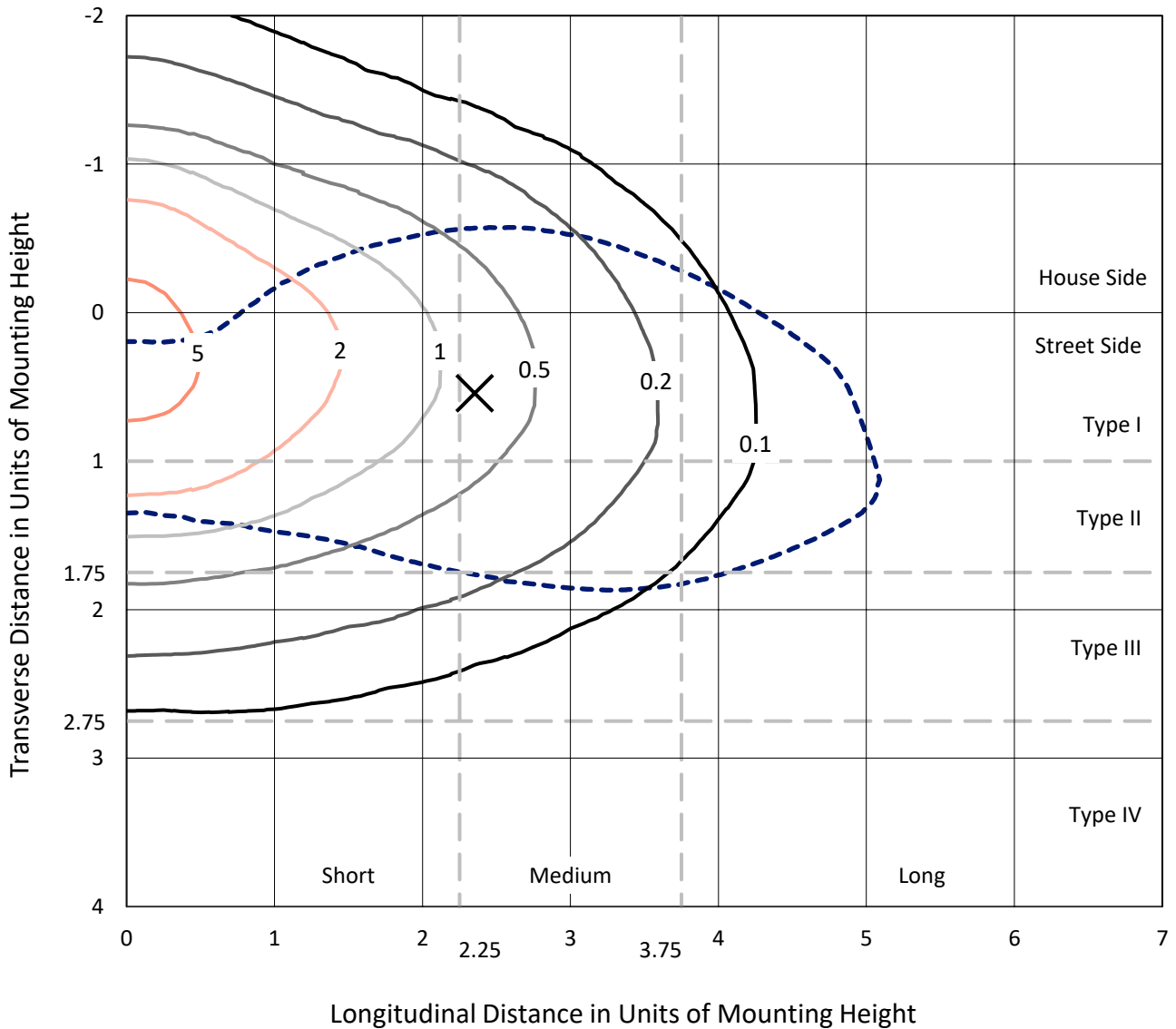
Lumens per Lamp: N/A
Luminaire Lumens: 12206.1 lumens
Efficiency: N/A
Efficacy: 135.6 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G3

Input Watts (W): 90
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.20%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Iso-Footcandle Lines of Horizontal Illumination

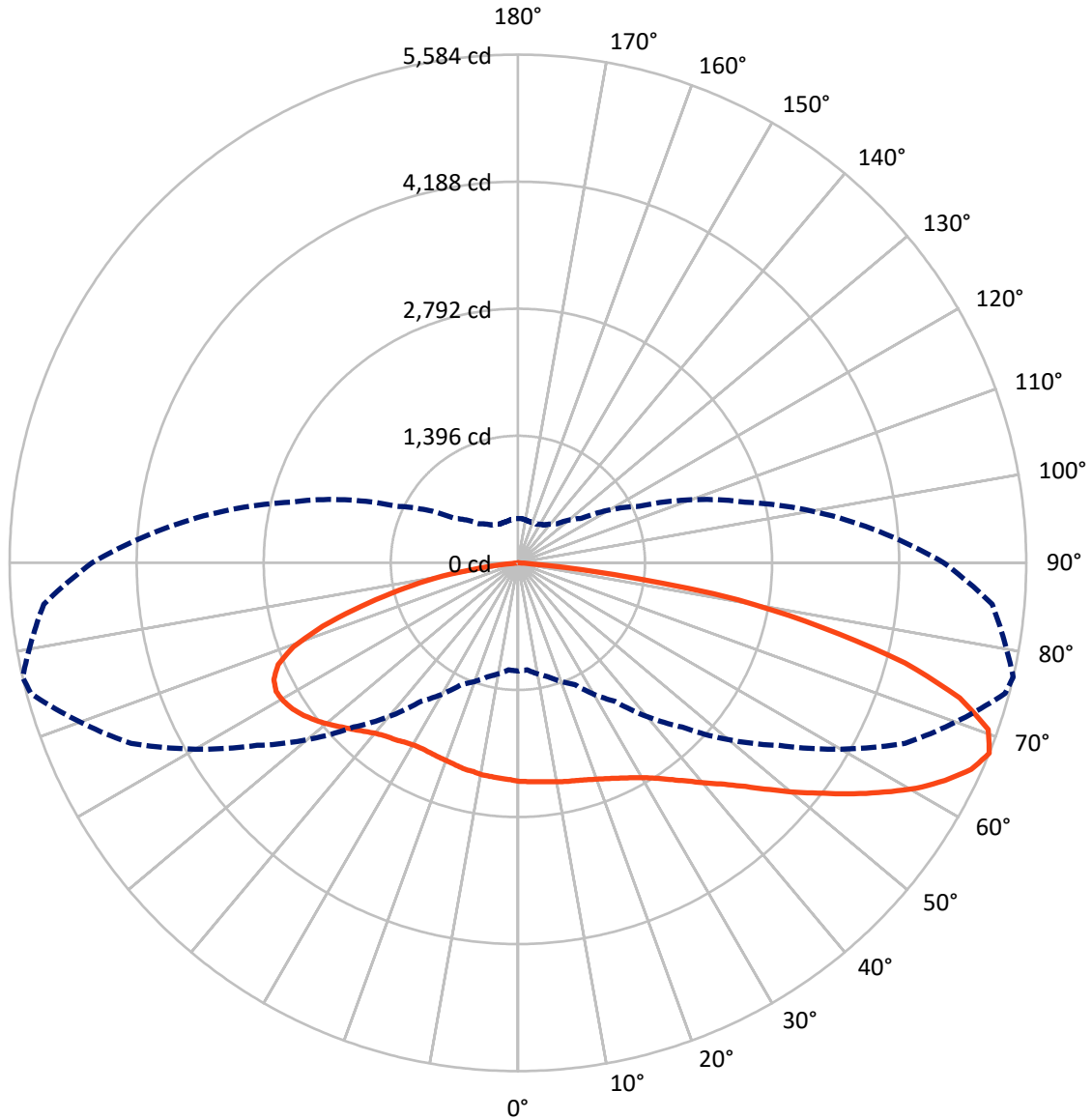
× Max cd
 - - - 1/2 Max cd



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

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Luminous Intensity Polar Plot



— Vertical Plane Through 77-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4058.9 | 0.0 | 4058.9 |
| | % Fixture | 33.3 | 0.0 | 33.3 |
| Street Side | Lumens | 8147.2 | 0.0 | 8147.2 |
| | % Fixture | 66.7 | 0.0 | 66.7 |
| Total | Lumens | 12206.1 | 0.0 | 12206.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 230.7 | 1.9 |
| 10°-20° | 699.5 | 5.7 |
| 20°-30° | 1179.4 | 9.7 |
| 30°-40° | 1673.6 | 13.7 |
| 40°-50° | 2117.4 | 17.3 |
| 50°-60° | 2319.6 | 19.0 |
| 60°-70° | 2242.2 | 18.4 |
| 70°-80° | 1508.0 | 12.4 |
| 80°-90° | 235.7 | 1.9 |
| 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° | 12206.1 | 100.0 |
| 0°-180° | 12206.1 | 100.0 |

Coefficient of Utilization



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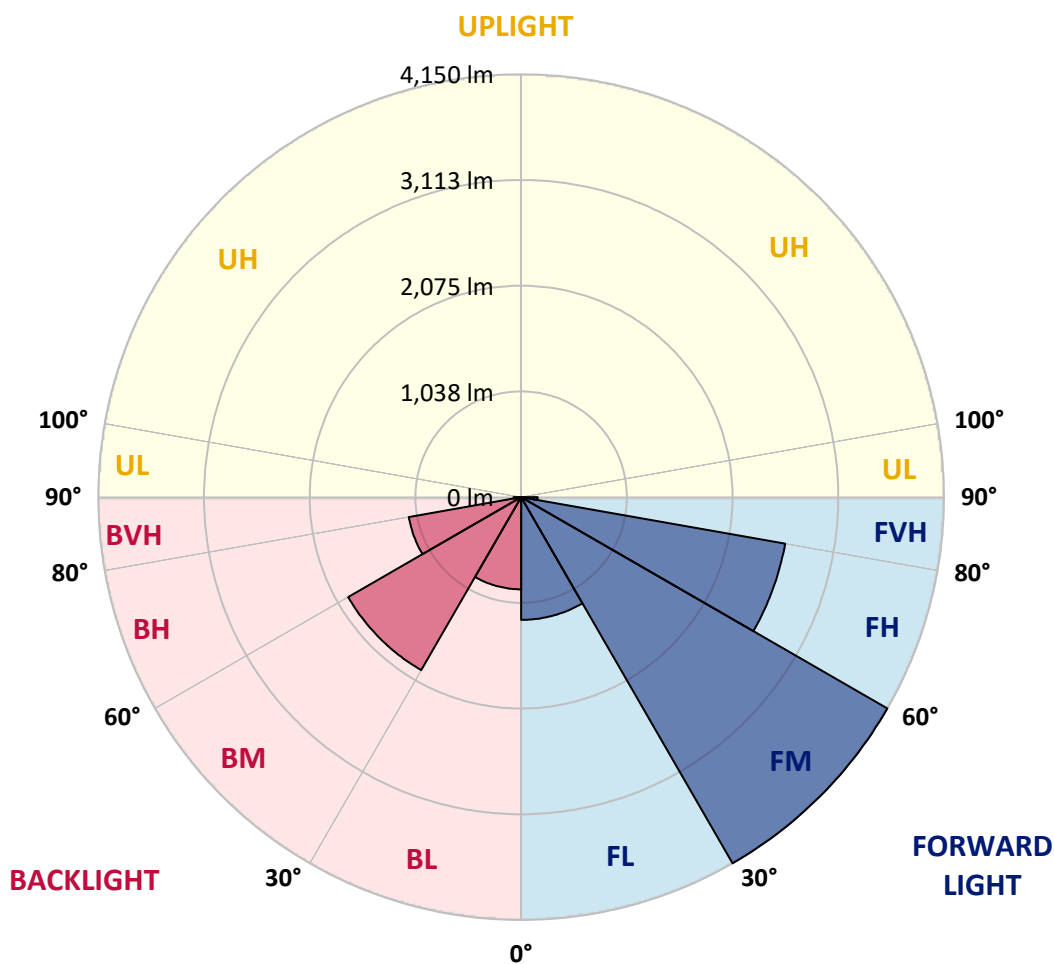
CATALOG NUMBER: MEM2-HTN-SA-90-730-U-T2U

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 1204.8 | 9.9 | | | |
| FM | (30°-60°) | 4150.2 | 34.0 | | | |
| FH | (60°-80°) | 2630.8 | 21.6 | | | G2/5000 |
| FVH | (80°-90°) | 161.4 | 1.3 | | | G2/225 |
| BL | (0°-30°) | 904.8 | 7.4 | B2/1000 | | |
| BM | (30°-60°) | 1960.4 | 16.1 | B2/2500 | | |
| BH | (60°-80°) | 1119.5 | 9.2 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 74.3 | 0.6 | | | 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 III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 77° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 |
| 2.5° | 2453.0 | 2450.6 | 2438.5 | 2443.3 | 2428.8 | 2438.5 | 2424.0 | 2411.9 | 2409.5 | 2407.1 | 2409.5 |
| 5° | 2530.2 | 2518.2 | 2506.1 | 2498.8 | 2486.8 | 2481.9 | 2457.8 | 2433.7 | 2419.2 | 2416.8 | 2411.9 |
| 7.5° | 2619.6 | 2614.7 | 2597.8 | 2588.2 | 2554.4 | 2537.5 | 2503.7 | 2460.2 | 2438.5 | 2428.8 | 2416.8 |
| 10° | 2711.3 | 2723.4 | 2701.6 | 2682.3 | 2643.7 | 2607.5 | 2549.5 | 2494.0 | 2450.6 | 2445.7 | 2419.2 |
| 12.5° | 2824.8 | 2822.4 | 2807.9 | 2774.1 | 2728.2 | 2677.5 | 2607.5 | 2530.2 | 2472.3 | 2462.6 | 2424.0 |
| 15° | 2926.2 | 2923.8 | 2904.4 | 2873.1 | 2812.7 | 2749.9 | 2655.8 | 2566.4 | 2494.0 | 2479.5 | 2433.7 |
| 17.5° | 3020.3 | 3015.5 | 3003.4 | 2969.6 | 2894.8 | 2817.5 | 2725.8 | 2607.5 | 2520.6 | 2503.7 | 2440.9 |
| 20° | 3102.4 | 3107.3 | 3092.8 | 3059.0 | 2988.9 | 2906.9 | 2791.0 | 2660.6 | 2554.4 | 2535.1 | 2462.6 |
| 22.5° | 3191.8 | 3194.2 | 3186.9 | 3174.9 | 3085.5 | 2998.6 | 2873.1 | 2721.0 | 2593.0 | 2573.7 | 2486.8 |
| 25° | 3285.9 | 3288.3 | 3293.2 | 3285.9 | 3184.5 | 3090.4 | 2957.6 | 2795.8 | 2646.1 | 2619.6 | 2520.6 |
| 27.5° | 3394.6 | 3397.0 | 3406.6 | 3392.1 | 3283.5 | 3184.5 | 3051.7 | 2875.5 | 2701.6 | 2672.7 | 2549.5 |
| 30° | 3517.7 | 3527.3 | 3520.1 | 3515.3 | 3389.7 | 3293.2 | 3145.9 | 2957.6 | 2774.1 | 2737.9 | 2600.2 |
| 32.5° | 3665.0 | 3662.5 | 3648.1 | 3633.6 | 3505.6 | 3404.2 | 3252.1 | 3063.8 | 2863.4 | 2822.4 | 2682.3 |
| 35° | 3771.2 | 3771.2 | 3749.5 | 3742.2 | 3623.9 | 3517.7 | 3368.0 | 3182.1 | 2964.8 | 2926.2 | 2769.2 |
| 37.5° | 3836.4 | 3846.0 | 3829.1 | 3834.0 | 3720.5 | 3621.5 | 3483.9 | 3302.8 | 3075.9 | 3042.1 | 2875.5 |
| 40° | 3860.5 | 3884.7 | 3899.2 | 3918.5 | 3805.0 | 3720.5 | 3607.0 | 3433.2 | 3218.3 | 3179.7 | 3003.4 |
| 42.5° | 3865.4 | 3901.6 | 3952.3 | 3993.3 | 3865.4 | 3795.3 | 3725.3 | 3566.0 | 3358.3 | 3324.5 | 3143.5 |
| 45° | 3841.2 | 3824.3 | 3947.4 | 3952.3 | 3899.2 | 3855.7 | 3829.1 | 3725.3 | 3561.1 | 3505.6 | 3317.3 |
| 47.5° | 3657.7 | 3638.4 | 3672.2 | 3826.7 | 3858.1 | 3882.3 | 3935.4 | 3911.2 | 3764.0 | 3720.5 | 3517.7 |
| 50° | 3360.8 | 3351.1 | 3486.3 | 3652.9 | 3756.7 | 3879.8 | 4022.3 | 4089.9 | 3988.5 | 3961.9 | 3771.2 |
| 52.5° | 2870.6 | 2844.1 | 3119.3 | 3442.8 | 3623.9 | 3855.7 | 4082.6 | 4273.4 | 4242.0 | 4203.4 | 3988.5 |
| 55° | 2559.2 | 2559.2 | 2745.1 | 3148.3 | 3454.9 | 3768.8 | 4121.3 | 4466.5 | 4522.1 | 4478.6 | 4237.2 |
| 57.5° | 2226.0 | 2252.6 | 2445.7 | 2723.4 | 3211.1 | 3609.4 | 4116.4 | 4628.3 | 4792.5 | 4751.4 | 4500.3 |
| 60° | 1941.1 | 1962.9 | 2073.9 | 2354.0 | 2923.8 | 3399.4 | 4063.3 | 4761.1 | 5043.5 | 5029.1 | 4732.1 |
| 62.5° | 1651.4 | 1678.0 | 1767.3 | 2030.5 | 2544.7 | 3158.0 | 3952.3 | 4833.5 | 5280.2 | 5265.7 | 4966.3 |
| 65° | 1419.6 | 1422.0 | 1511.4 | 1731.1 | 2165.7 | 2865.8 | 3756.7 | 4819.0 | 5463.6 | 5473.3 | 5164.3 |
| 67.5° | 1187.9 | 1180.6 | 1296.5 | 1475.2 | 1856.6 | 2552.0 | 3496.0 | 4691.1 | 5540.9 | 5584.4 | 5229.5 |
| 70° | 874.0 | 883.6 | 1045.4 | 1243.4 | 1569.3 | 2189.8 | 3131.4 | 4442.4 | 5415.4 | 5483.0 | 5079.8 |
| 72.5° | 656.7 | 676.0 | 832.9 | 1038.2 | 1311.0 | 1827.7 | 2733.0 | 4010.2 | 5065.3 | 5074.9 | 4623.5 |
| 75° | 533.6 | 538.4 | 678.4 | 861.9 | 1074.4 | 1465.5 | 2194.6 | 3348.7 | 4283.0 | 4394.1 | 3928.1 |
| 77.5° | 453.9 | 449.1 | 516.7 | 695.3 | 866.7 | 1171.0 | 1653.8 | 2547.1 | 3363.2 | 3413.9 | 3075.9 |
| 80° | 386.3 | 383.9 | 408.0 | 562.5 | 678.4 | 835.4 | 1132.3 | 1774.5 | 2399.9 | 2455.4 | 2185.0 |
| 82.5° | 202.8 | 217.3 | 212.5 | 347.7 | 383.9 | 439.4 | 543.2 | 806.4 | 1047.8 | 1062.3 | 1004.4 |
| 85° | 9.7 | 9.7 | 9.7 | 14.5 | 24.1 | 38.6 | 74.8 | 74.8 | 82.1 | 156.9 | 178.7 |
| 87.5° | 2.4 | 2.4 | 4.8 | 4.8 | 4.8 | 7.2 | 7.2 | 9.7 | 9.7 | 9.7 | 9.7 |
| 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: P867550

CATALOG NUMBER: MEM2-HTN-SA-90-730-U-T2U

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 | 2399.9 |
| 2.5° | 2404.7 | 2395.0 | 2380.5 | 2382.9 | 2380.5 | 2380.5 | 2368.5 | 2358.8 | 2356.4 | 2361.2 | 2370.9 |
| 5° | 2407.1 | 2392.6 | 2370.9 | 2363.6 | 2356.4 | 2351.6 | 2332.2 | 2317.8 | 2310.5 | 2315.3 | 2317.8 |
| 7.5° | 2407.1 | 2385.4 | 2361.2 | 2346.7 | 2327.4 | 2312.9 | 2291.2 | 2271.9 | 2262.2 | 2264.6 | 2269.5 |
| 10° | 2402.3 | 2378.1 | 2358.8 | 2329.8 | 2298.4 | 2281.5 | 2247.7 | 2223.6 | 2211.5 | 2213.9 | 2201.9 |
| 12.5° | 2402.3 | 2375.7 | 2337.1 | 2310.5 | 2267.1 | 2230.8 | 2204.3 | 2177.7 | 2168.1 | 2158.4 | 2153.6 |
| 15° | 2404.7 | 2370.9 | 2332.2 | 2276.7 | 2226.0 | 2187.4 | 2153.6 | 2136.7 | 2122.2 | 2117.4 | 2119.8 |
| 17.5° | 2404.7 | 2370.9 | 2312.9 | 2247.7 | 2189.8 | 2141.5 | 2112.5 | 2093.2 | 2088.4 | 2083.6 | 2083.6 |
| 20° | 2416.8 | 2373.3 | 2296.0 | 2218.8 | 2146.3 | 2095.6 | 2069.1 | 2057.0 | 2057.0 | 2049.8 | 2049.8 |
| 22.5° | 2436.1 | 2378.1 | 2286.4 | 2194.6 | 2110.1 | 2054.6 | 2025.6 | 2011.1 | 2018.4 | 2013.6 | 2011.1 |
| 25° | 2457.8 | 2395.0 | 2274.3 | 2160.8 | 2061.8 | 2003.9 | 1974.9 | 1965.3 | 1962.9 | 1950.8 | 1967.7 |
| 27.5° | 2474.7 | 2407.1 | 2267.1 | 2127.0 | 2018.4 | 1950.8 | 1914.6 | 1897.7 | 1885.6 | 1890.4 | 1885.6 |
| 30° | 2520.6 | 2440.9 | 2269.5 | 2098.1 | 1970.1 | 1888.0 | 1844.6 | 1825.2 | 1820.4 | 1820.4 | 1820.4 |
| 32.5° | 2583.3 | 2484.4 | 2286.4 | 2086.0 | 1924.2 | 1827.7 | 1774.5 | 1755.2 | 1750.4 | 1740.7 | 1745.6 |
| 35° | 2663.0 | 2549.5 | 2312.9 | 2066.7 | 1888.0 | 1757.6 | 1699.7 | 1673.1 | 1665.9 | 1656.2 | 1656.2 |
| 37.5° | 2752.3 | 2614.7 | 2332.2 | 2057.0 | 1839.7 | 1685.2 | 1620.0 | 1586.2 | 1581.4 | 1571.7 | 1576.6 |
| 40° | 2865.8 | 2704.1 | 2363.6 | 2037.7 | 1784.2 | 1620.0 | 1533.1 | 1477.6 | 1489.6 | 1494.5 | 1504.1 |
| 42.5° | 2993.8 | 2817.5 | 2411.9 | 2018.4 | 1740.7 | 1552.4 | 1424.5 | 1368.9 | 1383.4 | 1378.6 | 1388.2 |
| 45° | 3167.6 | 2950.3 | 2472.3 | 2011.1 | 1687.6 | 1470.3 | 1313.4 | 1250.6 | 1245.8 | 1238.6 | 1243.4 |
| 47.5° | 3348.7 | 3109.7 | 2530.2 | 1996.7 | 1629.7 | 1368.9 | 1187.9 | 1108.2 | 1088.9 | 1079.2 | 1069.6 |
| 50° | 3537.0 | 3269.0 | 2597.8 | 1987.0 | 1552.4 | 1255.5 | 1062.3 | 970.6 | 934.3 | 922.3 | 910.2 |
| 52.5° | 3749.5 | 3440.4 | 2655.8 | 1962.9 | 1467.9 | 1137.2 | 948.8 | 845.0 | 804.0 | 779.8 | 782.2 |
| 55° | 3974.0 | 3597.4 | 2708.9 | 1933.9 | 1371.3 | 1026.1 | 835.4 | 748.4 | 707.4 | 700.2 | 700.2 |
| 57.5° | 4181.6 | 3759.1 | 2747.5 | 1883.2 | 1274.8 | 917.4 | 741.2 | 666.4 | 647.0 | 656.7 | 656.7 |
| 60° | 4394.1 | 3889.5 | 2766.8 | 1827.7 | 1175.8 | 825.7 | 676.0 | 615.7 | 606.0 | 625.3 | 627.7 |
| 62.5° | 4565.5 | 3993.3 | 2762.0 | 1750.4 | 1067.1 | 746.0 | 613.2 | 565.0 | 569.8 | 603.6 | 610.8 |
| 65° | 4688.6 | 4044.0 | 2701.6 | 1634.5 | 963.3 | 676.0 | 557.7 | 511.8 | 511.8 | 536.0 | 543.2 |
| 67.5° | 4679.0 | 3978.8 | 2580.9 | 1472.7 | 852.3 | 606.0 | 507.0 | 470.8 | 470.8 | 487.7 | 485.3 |
| 70° | 4481.0 | 3754.3 | 2351.6 | 1277.2 | 743.6 | 545.6 | 463.6 | 437.0 | 434.6 | 441.8 | 439.4 |
| 72.5° | 4005.4 | 3298.0 | 1994.2 | 1055.1 | 642.2 | 485.3 | 420.1 | 396.0 | 391.1 | 381.5 | 374.2 |
| 75° | 3305.2 | 2708.9 | 1557.2 | 840.2 | 543.2 | 427.3 | 379.1 | 357.3 | 338.0 | 350.1 | 342.8 |
| 77.5° | 2564.0 | 2078.7 | 1158.9 | 651.9 | 441.8 | 371.8 | 338.0 | 313.9 | 309.0 | 352.5 | 338.0 |
| 80° | 1871.1 | 1436.5 | 818.5 | 466.0 | 342.8 | 301.8 | 282.5 | 263.2 | 333.2 | 446.7 | 444.2 |
| 82.5° | 830.5 | 692.9 | 374.2 | 222.1 | 159.3 | 132.8 | 111.1 | 125.5 | 210.0 | 205.2 | 212.5 |
| 85° | 74.8 | 77.3 | 41.0 | 26.6 | 16.9 | 14.5 | 9.7 | 9.7 | 7.2 | 7.2 | 7.2 |
| 87.5° | 9.7 | 9.7 | 7.2 | 7.2 | 4.8 | 4.8 | 4.8 | 4.8 | 2.4 | 2.4 | 2.4 |
| 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: SP1-2407-157-4

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-30-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-30-730-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-4
 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-30-730-U-5WQ-2**
 Description: Epic Modern Light Square 30W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3057
 CIE u': 0.2487
 CIE v': 0.5199
 Duv: -0.0002
 CIE x: 0.4326
 CIE y: 0.4020
 CIE z: 0.1654
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 50.50735
 Rf: 74.6
 Rg: 94

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 68.1 | R9: | -34.8 |
| R2: | 82.0 | R10: | 58.5 |
| R3: | 93.5 | R11: | 62.5 |
| R4: | 67.5 | R12: | 47.5 |
| R5: | 67.2 | R13: | 70.7 |
| R6: | 74.9 | R14: | 96.4 |
| R7: | 77.4 | R15: | 60.0 |
| R8: | 43.1 | | |



Test Conditions

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

REPORT NUMBER: SP1-2407-157-4

| 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: SP1-2407-157-4

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: SP1-2407-157-4

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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.23

| λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) | λ (nm) | Power W^{\wedge}/nm | Lumens (ϕ/nm) |
|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|
| 360 | 0 | NR | 490 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.27

| 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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 74.6$
 $R_g = 94$
 $CIE R_a = 71.7$
 $R_9 = -34.8$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 65 | CES51 = 87 | CES76 = 58 |
| CES02 = 62 | CES27 = 89 | CES52 = 85 | CES77 = 76 |
| CES03 = 31 | CES28 = 84 | CES53 = 77 | CES78 = 61 |
| CES04 = 71 | CES29 = 68 | CES54 = 85 | CES79 = 86 |
| CES05 = 49 | CES30 = 83 | CES55 = 84 | CES80 = 83 |
| CES06 = 51 | CES31 = 71 | CES56 = 74 | CES81 = 73 |
| CES07 = 41 | CES32 = 64 | CES57 = 74 | CES82 = 93 |
| CES08 = 40 | CES33 = 78 | CES58 = 75 | CES83 = 91 |
| CES09 = 29 | CES34 = 75 | CES59 = 85 | CES84 = 88 |
| CES10 = 76 | CES35 = 87 | CES60 = 90 | CES85 = 75 |
| CES11 = 59 | CES36 = 92 | CES61 = 81 | CES86 = 64 |
| CES12 = 65 | CES37 = 84 | CES62 = 89 | CES87 = 77 |
| CES13 = 43 | CES38 = 92 | CES63 = 75 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 65 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 64 | CES90 = 80 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 78 |
| CES17 = 50 | CES42 = 86 | CES67 = 58 | CES92 = 56 |
| CES18 = 56 | CES43 = 77 | CES68 = 66 | CES93 = 73 |
| CES19 = 73 | CES44 = 99 | CES69 = 75 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 60 | CES95 = 66 |
| CES21 = 87 | CES46 = 81 | CES71 = 56 | CES96 = 76 |
| CES22 = 79 | CES47 = 86 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 95 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 60 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)