

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: McGRAW-EDISON

Report Number: P437093

Luminaire Tested: **ISC-SA1A-830-U-T4W-HSS**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437093
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-13)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISC-SA1A-830-U-T4W-HSS
Description: IMPACT ELITE LED CYLINDER LUMINAIRE
(1) 80 CRI, 3000K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV WIDE OPTICS
WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1643 lumens
Efficiency: N/A
Efficacy: 81.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B0 - U0 - G1

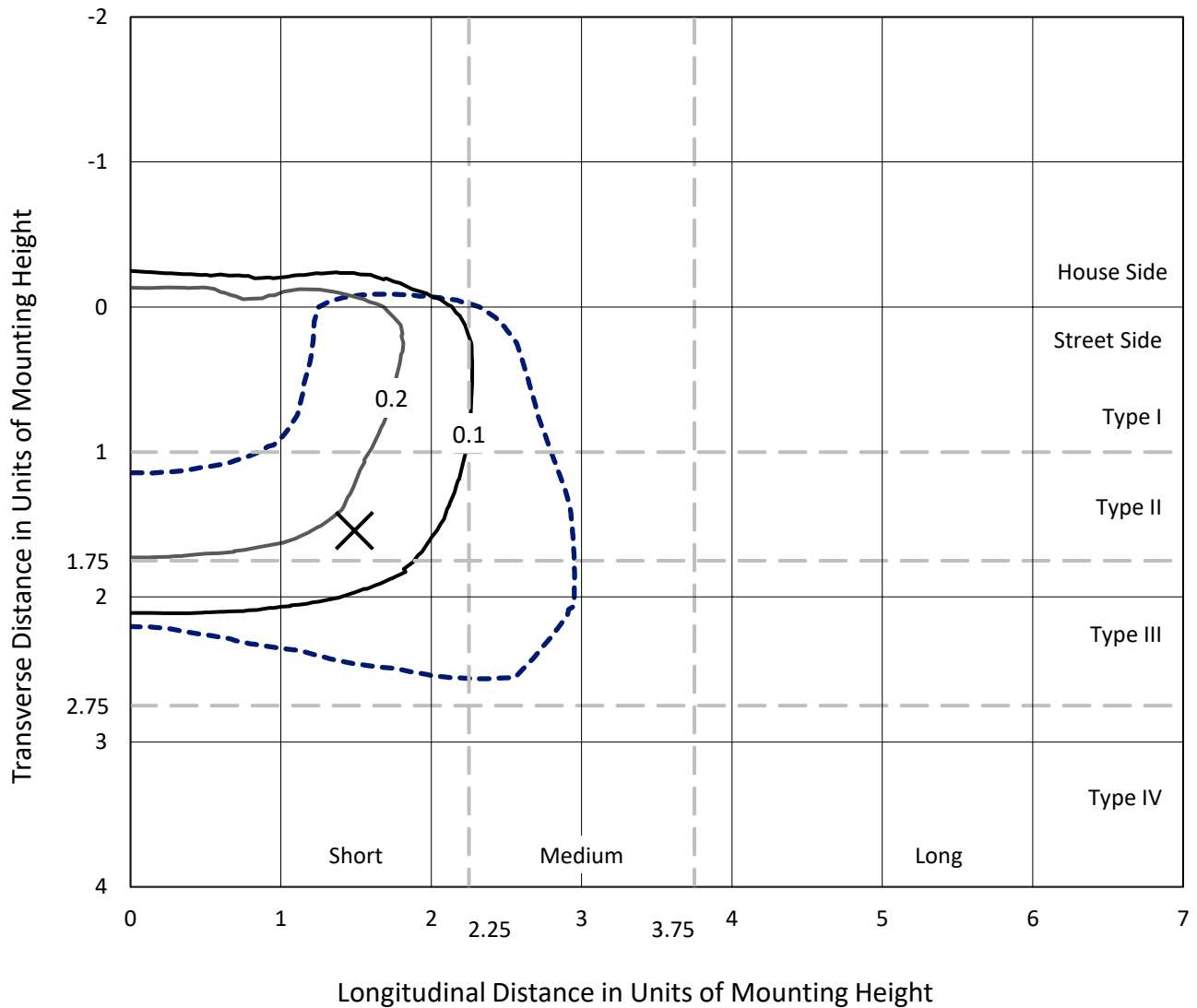
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P437093
 CATALOG NUMBER: ISC-SA1A-830-U-T4W-HSS

Iso-Footcandle Lines of Horizontal Illumination

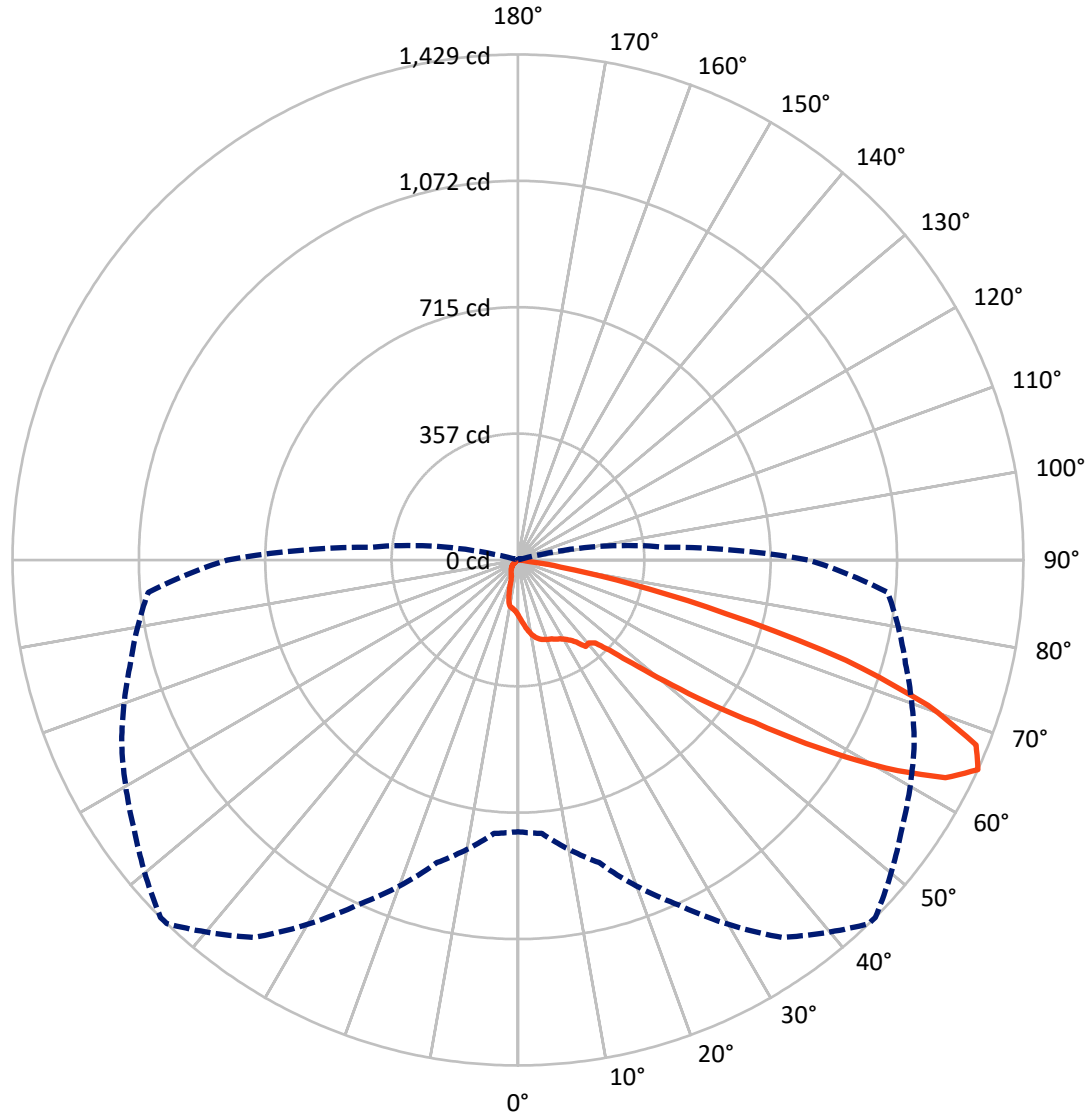
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.4 fc
 Type III - Short - N/A

REPORT NUMBER: P437093
CATALOG NUMBER: ISC-SA1A-830-U-T4W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 44-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

REPORT NUMBER: P437093

CATALOG NUMBER: ISC-SA1A-830-U-T4W-HSS

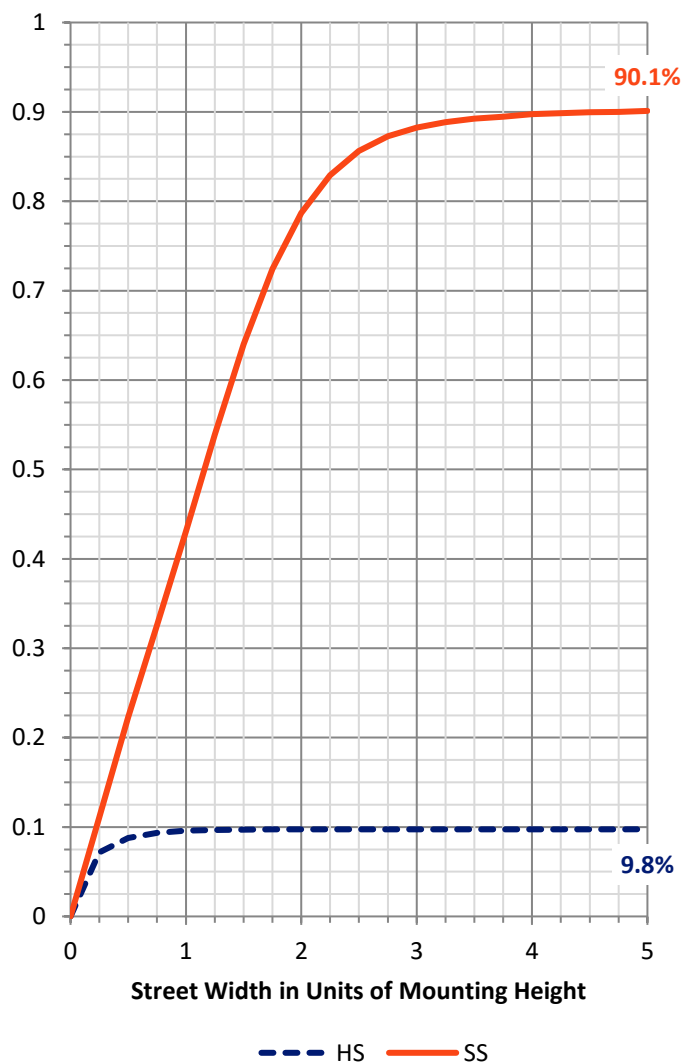
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 161.6 | 0.0 | 161.6 |
| | % Fixture | 9.8 | 0.0 | 9.8 |
| Street Side | Lumens | 1481.4 | 0.0 | 1481.4 |
| | % Fixture | 90.2 | 0.0 | 90.2 |
| Total | Lumens | 1643.0 | 0.0 | 1643.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 15.9 | 1.0 |
| 10°-20° | 47.8 | 2.9 |
| 20°-30° | 76.6 | 4.7 |
| 30°-40° | 113.7 | 6.9 |
| 40°-50° | 207.3 | 12.6 |
| 50°-60° | 434.6 | 26.5 |
| 60°-70° | 553.2 | 33.7 |
| 70°-80° | 185.7 | 11.3 |
| 80°-90° | 8.3 | 0.5 |
| 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° | 1643.0 | 100.0 |
| 0°-180° | 1643.0 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P437093

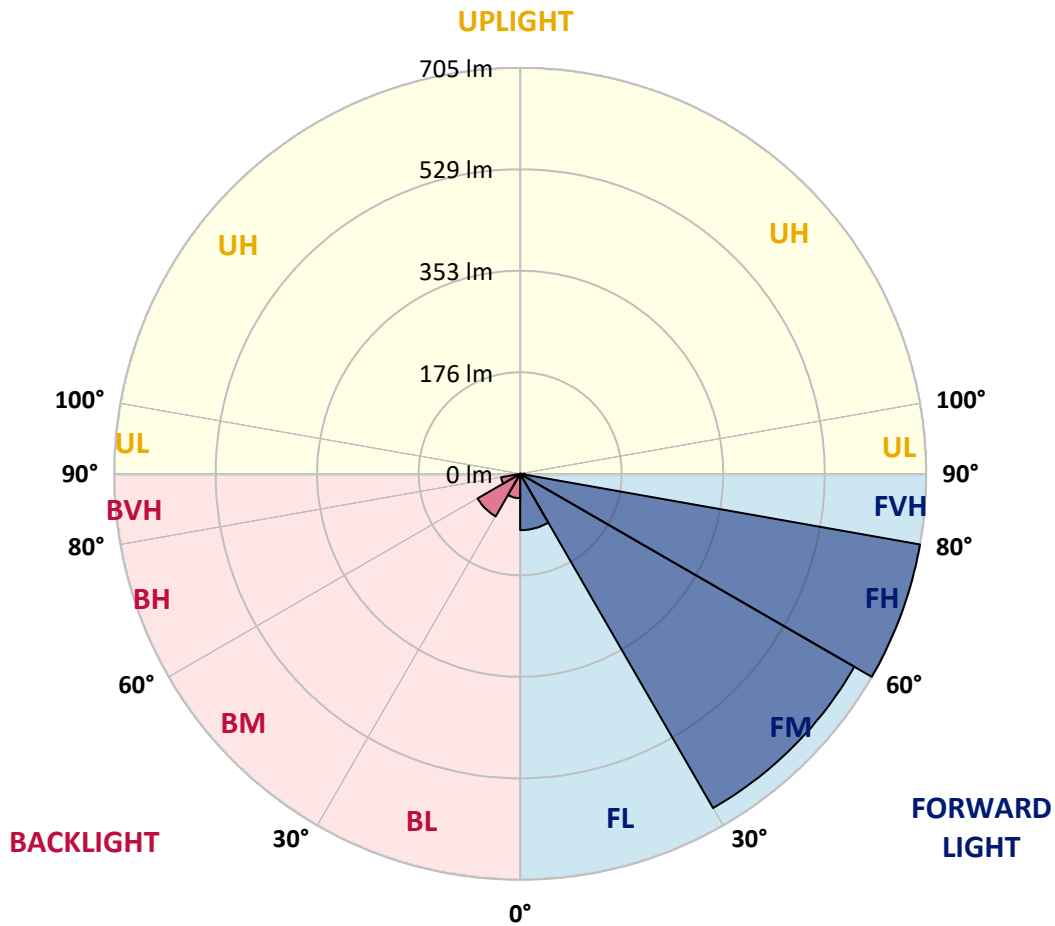
CATALOG NUMBER: ISC-SA1A-830-U-T4W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 97.8 | 6.0 | | | |
| FM (30°-60°) | 670.3 | 40.8 | | | |
| FH (60°-80°) | 705.1 | 42.9 | | | G1/1800 |
| FVH (80°-90°) | 8.1 | 0.5 | | | G0/10 |
| BL (0°-30°) | 42.4 | 2.6 | B0/110 | | |
| BM (30°-60°) | 85.3 | 5.2 | B0/220 | | |
| BH (60°-80°) | 33.7 | 2.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.2 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G1

Type III Short





REPORT NUMBER: P437093
 CATALOG NUMBER: ISC-SA1A-830-U-T4W-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 |
| 2.5° | 176.4 | 177.2 | 174.0 | 174.8 | 173.2 | 170.0 | 169.2 | 166.8 | 163.7 | 161.3 | 158.9 |
| 5° | 199.4 | 198.6 | 197.0 | 193.8 | 189.9 | 185.1 | 183.5 | 178.7 | 173.2 | 166.8 | 162.1 |
| 7.5° | 218.5 | 218.5 | 216.1 | 212.9 | 206.6 | 200.2 | 198.6 | 192.3 | 184.3 | 175.6 | 166.8 |
| 10° | 235.2 | 234.4 | 232.0 | 228.0 | 220.1 | 214.5 | 212.1 | 204.2 | 194.6 | 185.1 | 174.8 |
| 12.5° | 247.9 | 247.9 | 244.7 | 239.1 | 230.4 | 224.8 | 223.2 | 216.1 | 206.6 | 195.4 | 181.1 |
| 15° | 255.0 | 254.2 | 251.8 | 244.7 | 238.3 | 232.0 | 231.2 | 224.8 | 216.9 | 205.0 | 189.9 |
| 17.5° | 255.0 | 255.8 | 251.8 | 247.9 | 242.3 | 236.7 | 235.9 | 231.2 | 223.2 | 212.9 | 197.0 |
| 20° | 251.8 | 251.8 | 248.7 | 245.5 | 242.3 | 239.9 | 239.1 | 235.9 | 229.6 | 220.9 | 205.0 |
| 22.5° | 247.9 | 247.1 | 246.3 | 243.9 | 243.1 | 242.3 | 243.1 | 241.5 | 237.5 | 228.0 | 212.9 |
| 25° | 247.1 | 246.3 | 244.7 | 243.1 | 243.9 | 247.9 | 247.9 | 248.7 | 244.7 | 236.7 | 222.4 |
| 27.5° | 250.2 | 250.2 | 247.9 | 245.5 | 247.1 | 252.6 | 252.6 | 255.0 | 252.6 | 247.1 | 232.8 |
| 30° | 263.8 | 260.6 | 256.6 | 251.8 | 253.4 | 259.8 | 260.6 | 265.3 | 265.3 | 261.4 | 249.5 |
| 32.5° | 282.0 | 278.8 | 268.5 | 262.2 | 262.2 | 270.1 | 270.1 | 278.1 | 285.2 | 277.3 | 259.0 |
| 35° | 296.3 | 294.7 | 282.8 | 274.9 | 277.3 | 284.4 | 286.8 | 299.5 | 305.9 | 286.0 | 263.8 |
| 37.5° | 344.0 | 341.6 | 318.6 | 289.2 | 290.8 | 310.6 | 312.2 | 317.8 | 312.2 | 290.0 | 273.3 |
| 40° | 407.5 | 409.1 | 385.3 | 336.8 | 299.5 | 308.2 | 308.2 | 317.8 | 321.0 | 307.4 | 296.3 |
| 42.5° | 503.7 | 494.1 | 470.3 | 404.4 | 338.4 | 321.0 | 321.7 | 335.3 | 351.9 | 344.0 | 345.6 |
| 45° | 587.1 | 579.9 | 554.5 | 491.0 | 401.2 | 363.1 | 359.9 | 377.4 | 409.9 | 417.1 | 435.3 |
| 47.5° | 661.0 | 653.8 | 642.7 | 583.1 | 494.9 | 436.9 | 425.0 | 442.5 | 498.9 | 536.2 | 549.0 |
| 50° | 749.9 | 751.5 | 726.1 | 692.0 | 597.4 | 536.2 | 533.1 | 533.9 | 622.8 | 653.8 | 672.1 |
| 52.5° | 862.8 | 860.4 | 815.9 | 797.6 | 739.6 | 666.5 | 648.3 | 659.4 | 747.6 | 769.8 | 800.0 |
| 55° | 943.0 | 940.6 | 919.2 | 916.0 | 896.9 | 811.1 | 806.4 | 805.6 | 885.0 | 894.5 | 930.3 |
| 57.5° | 989.9 | 993.8 | 1008.9 | 1049.4 | 1065.3 | 1003.4 | 989.9 | 963.6 | 1008.1 | 1005.8 | 1044.7 |
| 60° | 997.8 | 1004.2 | 1047.1 | 1140.0 | 1229.0 | 1195.6 | 1177.4 | 1109.0 | 1120.9 | 1101.1 | 1124.9 |
| 62.5° | 933.5 | 951.7 | 1028.0 | 1159.1 | 1311.6 | 1356.1 | 1341.0 | 1235.3 | 1207.5 | 1166.2 | 1136.0 |
| 65° | 768.2 | 776.2 | 885.8 | 1076.5 | 1302.9 | 1429.2 | 1429.2 | 1325.1 | 1236.1 | 1134.5 | 1049.4 |
| 67.5° | 530.7 | 534.7 | 668.1 | 868.3 | 1169.4 | 1397.4 | 1409.3 | 1323.5 | 1186.1 | 1009.7 | 855.6 |
| 70° | 301.1 | 323.3 | 404.4 | 606.9 | 921.5 | 1230.6 | 1243.3 | 1204.4 | 993.0 | 748.4 | 560.9 |
| 72.5° | 125.5 | 139.8 | 197.0 | 353.5 | 626.8 | 969.2 | 991.5 | 954.9 | 742.0 | 456.8 | 265.3 |
| 75° | 38.9 | 40.5 | 65.1 | 154.1 | 342.4 | 608.5 | 645.9 | 644.3 | 443.3 | 213.7 | 108.0 |
| 77.5° | 21.4 | 22.2 | 31.0 | 62.8 | 150.1 | 324.9 | 348.0 | 328.9 | 219.3 | 92.2 | 33.4 |
| 80° | 10.3 | 11.1 | 16.7 | 30.2 | 65.9 | 121.5 | 143.0 | 132.7 | 76.3 | 43.7 | 11.1 |
| 82.5° | 3.2 | 4.0 | 7.9 | 13.5 | 26.2 | 28.6 | 28.6 | 50.8 | 38.9 | 28.6 | 5.6 |
| 85° | 0.0 | 0.0 | 2.4 | 4.8 | 4.8 | 4.8 | 4.8 | 11.1 | 18.3 | 17.5 | 2.4 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.6 | 0.8 |
| 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: P437093
 CATALOG NUMBER: ISC-SA1A-830-U-T4W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 | 156.5 |
| 2.5° | 157.3 | 156.5 | 153.3 | 150.1 | 148.6 | 147.0 | 145.4 | 143.8 | 143.8 | 144.6 | 143.8 |
| 5° | 158.9 | 156.5 | 151.7 | 147.0 | 143.8 | 141.4 | 138.2 | 137.4 | 136.6 | 137.4 | 137.4 |
| 7.5° | 162.9 | 159.7 | 152.5 | 145.4 | 140.6 | 136.6 | 134.3 | 133.5 | 131.9 | 131.9 | 131.9 |
| 10° | 169.2 | 163.7 | 154.1 | 146.2 | 139.8 | 134.3 | 127.1 | 119.2 | 114.4 | 111.2 | 108.8 |
| 12.5° | 175.6 | 169.2 | 156.5 | 147.0 | 139.8 | 123.9 | 106.5 | 91.4 | 83.4 | 79.4 | 78.6 |
| 15° | 182.7 | 174.8 | 161.3 | 150.1 | 131.1 | 101.7 | 77.9 | 65.1 | 62.0 | 62.0 | 61.2 |
| 17.5° | 188.3 | 181.1 | 165.2 | 150.9 | 115.2 | 76.3 | 58.8 | 54.8 | 55.6 | 57.2 | 57.2 |
| 20° | 197.0 | 188.3 | 170.8 | 143.8 | 89.0 | 57.2 | 51.6 | 52.4 | 53.2 | 54.0 | 54.8 |
| 22.5° | 205.0 | 195.4 | 177.2 | 127.9 | 65.1 | 49.3 | 49.3 | 50.0 | 50.8 | 51.6 | 52.4 |
| 25° | 214.5 | 205.8 | 183.5 | 104.9 | 50.0 | 45.3 | 46.1 | 47.7 | 48.5 | 49.3 | 49.3 |
| 27.5° | 225.6 | 216.1 | 183.5 | 82.6 | 43.7 | 42.1 | 42.1 | 43.7 | 44.5 | 46.1 | 46.1 |
| 30° | 240.7 | 230.4 | 178.7 | 61.2 | 40.5 | 38.9 | 38.1 | 39.7 | 40.5 | 42.1 | 42.1 |
| 32.5° | 250.2 | 243.9 | 168.4 | 46.1 | 37.3 | 35.7 | 35.0 | 35.0 | 35.7 | 37.3 | 37.3 |
| 35° | 259.8 | 256.6 | 152.5 | 39.7 | 35.0 | 33.4 | 31.8 | 30.2 | 30.2 | 30.2 | 30.2 |
| 37.5° | 274.9 | 279.6 | 129.5 | 36.5 | 33.4 | 31.0 | 28.6 | 26.2 | 24.6 | 23.8 | 23.0 |
| 40° | 305.9 | 309.8 | 106.5 | 34.2 | 31.0 | 28.6 | 24.6 | 21.4 | 19.1 | 17.5 | 17.5 |
| 42.5° | 354.3 | 351.1 | 81.0 | 32.6 | 28.6 | 25.4 | 20.7 | 17.5 | 14.3 | 12.7 | 12.7 |
| 45° | 438.5 | 402.8 | 59.6 | 30.2 | 27.0 | 23.0 | 17.5 | 13.5 | 10.3 | 9.5 | 9.5 |
| 47.5° | 541.8 | 462.4 | 45.3 | 28.6 | 24.6 | 19.9 | 13.5 | 10.3 | 7.9 | 7.1 | 7.1 |
| 50° | 653.0 | 523.5 | 37.3 | 26.2 | 22.2 | 16.7 | 11.1 | 7.1 | 5.6 | 5.6 | 5.6 |
| 52.5° | 757.9 | 564.8 | 31.0 | 23.8 | 19.1 | 13.5 | 7.9 | 5.6 | 4.8 | 4.8 | 4.8 |
| 55° | 855.6 | 590.3 | 25.4 | 20.7 | 15.9 | 10.3 | 6.4 | 4.8 | 4.0 | 3.2 | 3.2 |
| 57.5° | 922.3 | 586.3 | 20.7 | 16.7 | 11.9 | 7.1 | 4.8 | 4.0 | 3.2 | 2.4 | 2.4 |
| 60° | 945.4 | 551.3 | 15.9 | 13.5 | 8.7 | 5.6 | 4.0 | 3.2 | 2.4 | 1.6 | 1.6 |
| 62.5° | 912.8 | 482.2 | 12.7 | 10.3 | 6.4 | 4.8 | 3.2 | 2.4 | 1.6 | 0.8 | 0.8 |
| 65° | 821.4 | 414.7 | 9.5 | 7.1 | 4.8 | 3.2 | 2.4 | 1.6 | 0.8 | 0.0 | 0.0 |
| 67.5° | 653.8 | 321.7 | 7.9 | 4.8 | 3.2 | 2.4 | 1.6 | 0.8 | 0.0 | 0.0 | 0.0 |
| 70° | 409.1 | 201.8 | 6.4 | 3.2 | 2.4 | 1.6 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 198.6 | 99.3 | 4.8 | 2.4 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 73.9 | 32.6 | 4.0 | 2.4 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 23.8 | 11.1 | 3.2 | 2.4 | 1.6 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 8.7 | 4.8 | 1.6 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 4.0 | 2.4 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 1.6 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 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 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2408-195-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **GALN-SB1A-830-U-5WQ**
 Description: GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K): 3050
 CIE u': 0.2476
 CIE v': 0.5251
 Duv: 0.0034
 CIE x: 0.4383
 CIE y: 0.4131
 CIE z: 0.1487
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 581
 Purity: 55.55201
 Rf: 81.5
 Rg: 99.2

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 81.0 | | |
| R1: | 79.6 | R9: | 7.1 |
| R2: | 85.6 | R10: | 67.0 |
| R3: | 92.0 | R11: | 82.7 |
| R4: | 82.6 | R12: | 63.2 |
| R5: | 78.9 | R13: | 80.3 |
| R6: | 81.7 | R14: | 95.0 |
| R7: | 85.2 | R15: | 71.7 |
| R8: | 62.0 | | |



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2408-195-9

| 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: SP1-2408-195-9

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: SP1-2408-195-9

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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 81.5$
 $R_g = 99.2$
 $CIE R_a = 81.0$
 $R_9 = 7.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)