

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: HALO COMMERCIAL

Report Number: P837623

Luminaire Tested: HCSQ450D010-HM44560935-41SQC

Issue Date: 5/17/2024

Test Information

Test Method: LM-79-2019
Report Number: P837623
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-1)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 5/17/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCSQ450D010-HM44560935-41SQC
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

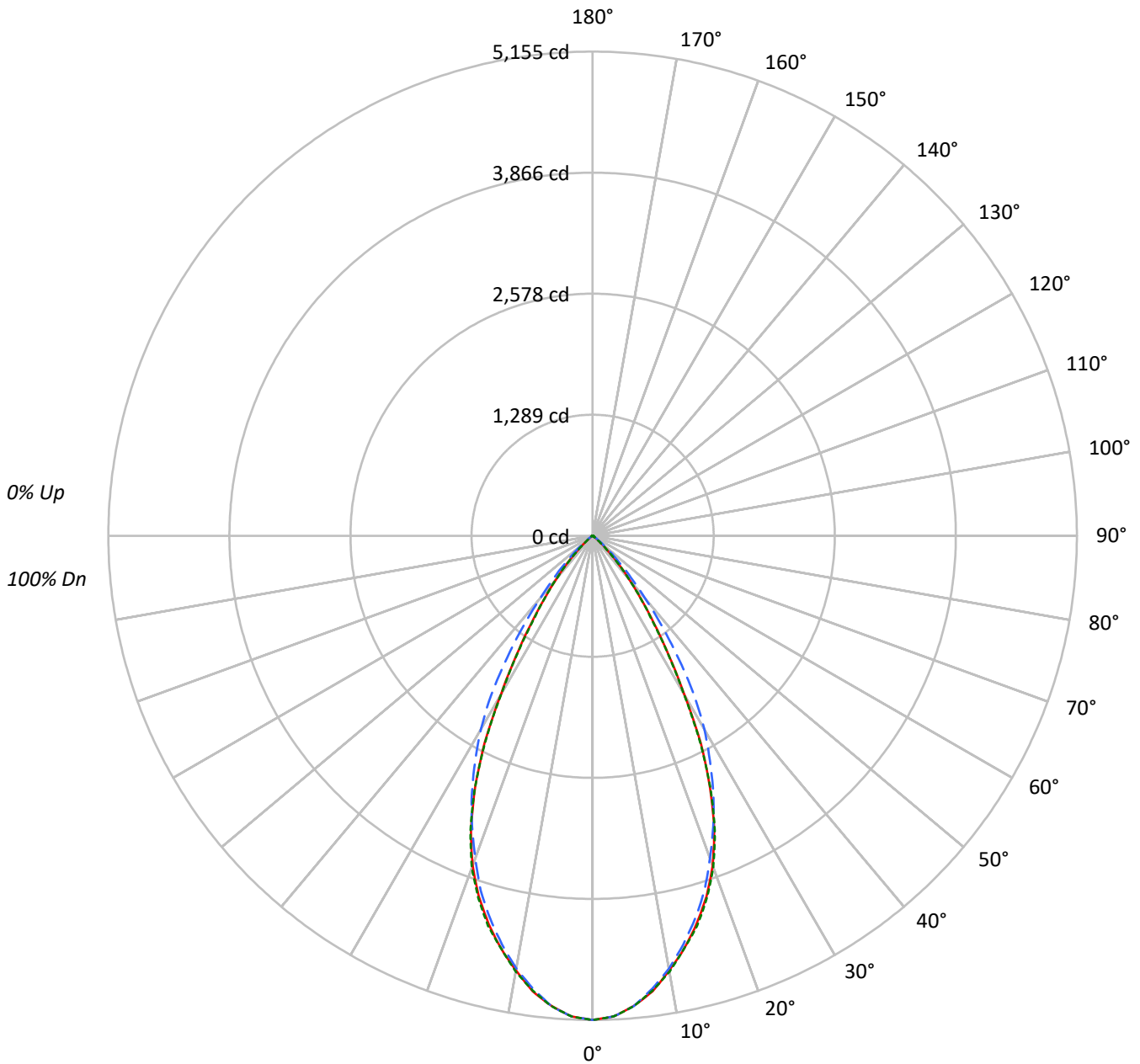
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4165.8 lumens
Efficiency: N/A
Efficacy: 83.8 lumens/watt
Spacing Criteria (0/90/45): 0.85 / 0.85 / 0.87
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 49.7
Input Voltage (V): NR
Input Current (A_{in}): 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: 24 FT

TEST NUMBER: P837623
CATALOG NUMBER: HCSQ450D010-HM44560935-41SQC

Luminous Intensity Polar Plot





TEST NUMBER: P837623

CATALOG NUMBER: HCSQ450D010-HM44560935-41SQC

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|--|--|--|--|---|
| RF | 20 | | | | | 20 | | | | | 20 | | | | | 20 | | | | | | | | | | |
| RC | 80 | | | | | 70 | | | | | 50 | | | | | 30 | | | | | 10 | | | | | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | | | | |
| 1 | 114 | 111 | 108 | 106 | 111 | 109 | 106 | 104 | 105 | 103 | 101 | 101 | 99 | 98 | 97 | 96 | 95 | 94 | | | | | | | | |
| 2 | 108 | 103 | 99 | 96 | 106 | 101 | 98 | 95 | 98 | 95 | 93 | 95 | 93 | 91 | 93 | 91 | 89 | 87 | | | | | | | | |
| 3 | 103 | 96 | 91 | 87 | 101 | 95 | 90 | 87 | 92 | 89 | 85 | 90 | 87 | 84 | 88 | 85 | 83 | 81 | | | | | | | | |
| 4 | 98 | 90 | 85 | 80 | 96 | 89 | 84 | 80 | 87 | 82 | 79 | 85 | 81 | 78 | 83 | 80 | 77 | 76 | | | | | | | | |
| 5 | 93 | 84 | 79 | 74 | 91 | 83 | 78 | 74 | 82 | 77 | 73 | 80 | 76 | 73 | 78 | 75 | 72 | 71 | | | | | | | | |
| 6 | 88 | 79 | 73 | 69 | 87 | 79 | 73 | 69 | 77 | 72 | 68 | 76 | 71 | 68 | 74 | 70 | 68 | 66 | | | | | | | | |
| 7 | 84 | 75 | 69 | 65 | 82 | 74 | 68 | 64 | 73 | 68 | 64 | 71 | 67 | 64 | 70 | 66 | 63 | 62 | | | | | | | | |
| 8 | 80 | 70 | 64 | 60 | 79 | 70 | 64 | 60 | 69 | 64 | 60 | 68 | 63 | 60 | 67 | 63 | 60 | 58 | | | | | | | | |
| 9 | 76 | 67 | 61 | 57 | 75 | 66 | 60 | 57 | 65 | 60 | 56 | 64 | 60 | 56 | 63 | 59 | 56 | 55 | | | | | | | | |
| 10 | 73 | 63 | 57 | 53 | 72 | 63 | 57 | 53 | 62 | 57 | 53 | 61 | 56 | 53 | 60 | 56 | 53 | 52 | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 499393 | 499393 | 499393 |
| 5° | 488688 | 488892 | 488892 |
| 10° | 462230 | 460174 | 463470 |
| 15° | 428882 | 423005 | 431189 |
| 20° | 384989 | 376360 | 387360 |
| 25° | 316213 | 325374 | 317325 |
| 30° | 218579 | 265851 | 216945 |
| 35° | 134595 | 187790 | 131378 |
| 40° | 75928 | 109794 | 75409 |
| 45° | 34675 | 55034 | 33251 |
| 50° | 8832 | 22064 | 9148 |
| 55° | 4239 | 6722 | 3885 |
| 60° | 2829 | 2441 | 3236 |
| 65° | 2407 | 1926 | 2407 |
| 70° | 1784 | 1784 | 2379 |
| 75° | 1572 | 1572 | 2358 |
| 80° | 2343 | 2343 | 2343 |
| 85° | 2334 | 4668 | 4668 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°

Vertical Angle: 45°

Luminance: 55034 cd/sqm



TEST NUMBER: P837623

CATALOG NUMBER: HCSQ450D010-HM44560935-41SQC

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 468.9 | 11.3 |
| 10°-20° | 1184.3 | 28.4 |
| 20°-30° | 1353.8 | 32.5 |
| 30°-40° | 840.4 | 20.2 |
| 40°-50° | 264.8 | 6.4 |
| 50°-60° | 34.3 | 0.8 |
| 60°-70° | 10.2 | 0.2 |
| 70°-80° | 5.4 | 0.1 |
| 80°-90° | 3.6 | 0.1 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 3007.1 | 72.2 |
| 0°-40° | 3847.5 | 92.4 |
| 0°-60° | 4146.6 | 99.5 |
| 0°-90° | 4165.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4165.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 5155 | 5155 | 5155 | 5155 | 5155 | |
| 5° | 5025 | 5021 | 5027 | 5023 | 5027 | 470 |
| 15° | 4276 | 4245 | 4218 | 4245 | 4299 | 1192 |
| 25° | 2958 | 3000 | 3044 | 3000 | 2969 | 1327 |
| 35° | 1138 | 1314 | 1588 | 1282 | 1111 | 731 |
| 45° | 253 | 303 | 402 | 305 | 243 | 213 |
| 55° | 25 | 25 | 40 | 25 | 23 | 25 |
| 65° | 10 | 10 | 8 | 10 | 10 | 10 |
| 75° | 4 | 4 | 4 | 4 | 6 | 5 |
| 85° | 2 | 4 | 4 | 4 | 4 | 2 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P837623

CATALOG NUMBER: HCSQ450D010-HM44560935-41SQC

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 5155.0 | 5155.0 | 5155.0 | 5155.0 | 5155.0 |
| 2.5° | 5123.6 | 5127.8 | 5123.6 | 5132.0 | 5123.6 |
| 5° | 5025.3 | 5021.1 | 5027.4 | 5023.2 | 5027.4 |
| 7.5° | 4891.4 | 4866.3 | 4864.2 | 4880.9 | 4883.0 |
| 10° | 4698.9 | 4692.6 | 4678.0 | 4692.6 | 4711.5 |
| 12.5° | 4502.2 | 4477.1 | 4456.2 | 4485.5 | 4502.2 |
| 15° | 4276.3 | 4244.9 | 4217.7 | 4244.9 | 4299.3 |
| 17.5° | 4027.3 | 3983.4 | 3960.4 | 3991.8 | 4044.1 |
| 20° | 3734.4 | 3688.4 | 3650.7 | 3677.9 | 3757.4 |
| 22.5° | 3383.0 | 3378.8 | 3353.7 | 3368.3 | 3397.6 |
| 25° | 2958.3 | 3000.1 | 3044.0 | 3000.1 | 2968.7 |
| 27.5° | 2491.7 | 2604.7 | 2705.1 | 2573.3 | 2472.9 |
| 30° | 1954.0 | 2125.6 | 2376.6 | 2113.0 | 1939.4 |
| 32.5° | 1510.5 | 1690.4 | 2010.5 | 1667.4 | 1498.0 |
| 35° | 1138.1 | 1313.9 | 1587.9 | 1282.5 | 1110.9 |
| 37.5° | 836.8 | 968.7 | 1207.2 | 960.3 | 836.8 |
| 40° | 600.4 | 686.2 | 868.2 | 684.1 | 596.3 |
| 42.5° | 416.3 | 472.8 | 606.7 | 468.6 | 403.8 |
| 45° | 253.1 | 303.4 | 401.7 | 305.4 | 242.7 |
| 47.5° | 133.9 | 192.5 | 253.1 | 184.1 | 133.9 |
| 50° | 58.6 | 102.5 | 146.4 | 100.4 | 60.7 |
| 52.5° | 31.4 | 43.9 | 79.5 | 43.9 | 31.4 |
| 55° | 25.1 | 25.1 | 39.8 | 25.1 | 23.0 |
| 57.5° | 18.8 | 18.8 | 20.9 | 18.8 | 18.8 |
| 60° | 14.6 | 14.6 | 12.6 | 14.6 | 16.7 |
| 62.5° | 12.6 | 12.6 | 10.5 | 12.6 | 12.6 |
| 65° | 10.5 | 10.5 | 8.4 | 10.5 | 10.5 |
| 67.5° | 8.4 | 8.4 | 8.4 | 8.4 | 8.4 |
| 70° | 6.3 | 6.3 | 6.3 | 8.4 | 8.4 |
| 72.5° | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 75° | 4.2 | 4.2 | 4.2 | 4.2 | 6.3 |
| 77.5° | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| 80° | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| 82.5° | 2.1 | 4.2 | 4.2 | 4.2 | 4.2 |
| 85° | 2.1 | 4.2 | 4.2 | 4.2 | 4.2 |
| 87.5° | 2.1 | 2.1 | 4.2 | 4.2 | 4.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Scaled Data Report



Report Generated By 670245859 / DESKTOP-T8S5UU9

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

Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270°

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

Scaled Data Report



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

Scaled Data Report



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

Scaled Data Report



(END OF REPORT)