

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: P837511

Luminaire Tested: HCSQ435D010-HM43040940-41SQMB

Issue Date: 5/17/2024

Test Information

Test Method: LM-79-2019
Report Number: P837511
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-4)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 5/17/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCSQ435D010-HM43040940-41SQMB
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE BLACK TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

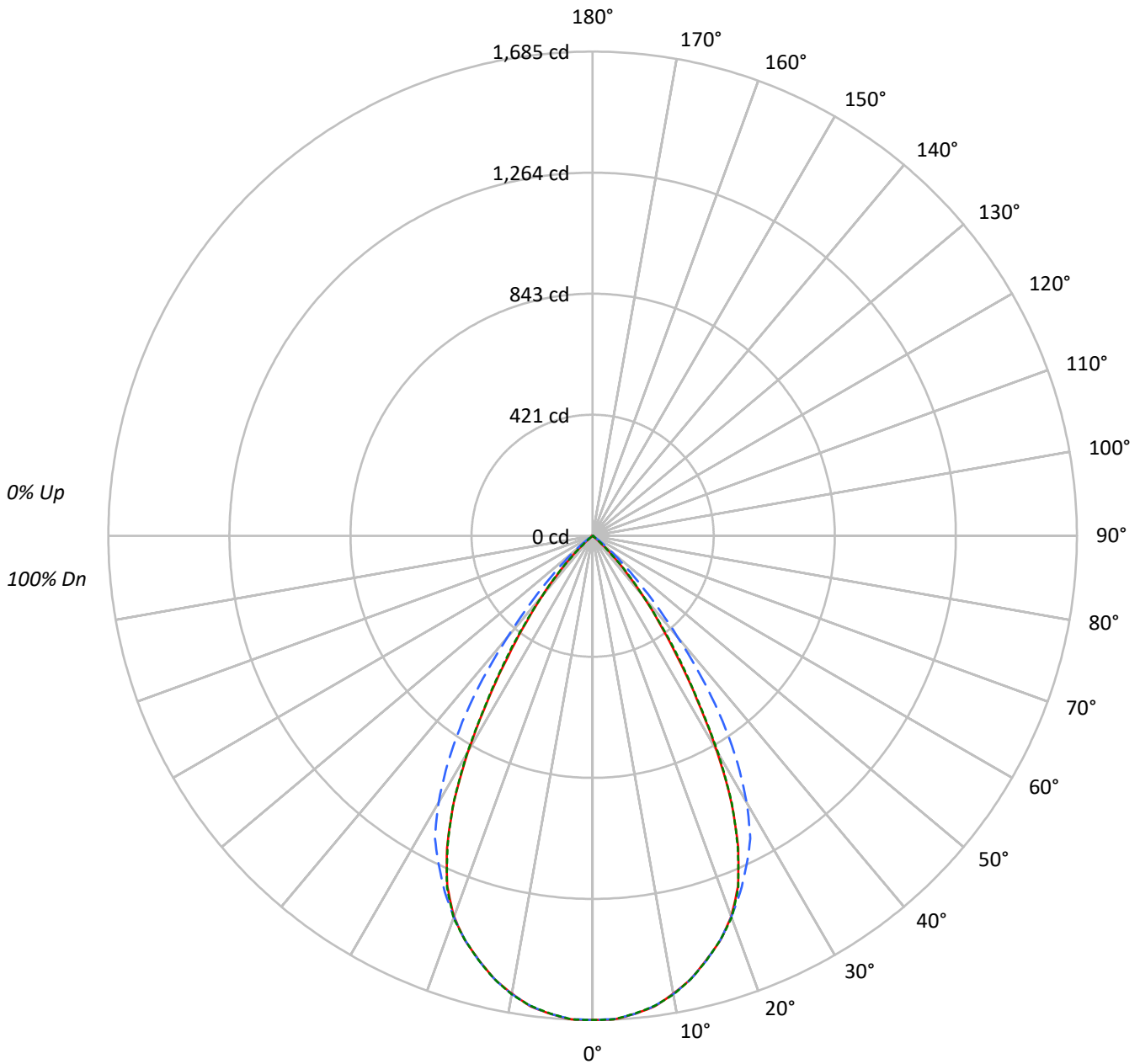
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1683.2 lumens
Efficiency: N/A
Efficacy: 49.5 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 0.96 / 0.99
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 34
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

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Luminous Intensity Polar Plot





TEST NUMBER: P837511

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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 | 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 | 113 | 111 | 108 | 106 | 111 | 108 | 106 | 104 | 104 | 103 | 101 | 101 | 99 | 98 | 97 | 96 | 95 | 93 | | | | | | | | |
| 2 | 108 | 103 | 99 | 95 | 105 | 101 | 97 | 94 | 98 | 95 | 92 | 95 | 92 | 90 | 92 | 90 | 88 | 87 | | | | | | | | |
| 3 | 102 | 96 | 91 | 87 | 100 | 94 | 90 | 86 | 92 | 88 | 84 | 89 | 86 | 83 | 87 | 84 | 82 | 80 | | | | | | | | |
| 4 | 97 | 89 | 83 | 79 | 95 | 88 | 83 | 79 | 86 | 81 | 78 | 84 | 80 | 77 | 82 | 79 | 76 | 74 | | | | | | | | |
| 5 | 92 | 83 | 77 | 73 | 90 | 82 | 77 | 73 | 80 | 76 | 72 | 79 | 75 | 71 | 77 | 74 | 71 | 69 | | | | | | | | |
| 6 | 87 | 78 | 72 | 67 | 85 | 77 | 71 | 67 | 76 | 70 | 67 | 74 | 70 | 66 | 73 | 69 | 66 | 64 | | | | | | | | |
| 7 | 82 | 73 | 67 | 63 | 81 | 72 | 66 | 62 | 71 | 66 | 62 | 70 | 65 | 62 | 69 | 65 | 61 | 60 | | | | | | | | |
| 8 | 78 | 69 | 62 | 58 | 77 | 68 | 62 | 58 | 67 | 62 | 58 | 66 | 61 | 58 | 65 | 61 | 57 | 56 | | | | | | | | |
| 9 | 74 | 65 | 58 | 54 | 73 | 64 | 58 | 54 | 63 | 58 | 54 | 62 | 57 | 54 | 61 | 57 | 54 | 52 | | | | | | | | |
| 10 | 71 | 61 | 55 | 51 | 70 | 60 | 55 | 51 | 60 | 54 | 51 | 59 | 54 | 51 | 58 | 54 | 50 | 49 | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 163225 | 163225 | 163225 |
| 5° | 162478 | 162478 | 162332 |
| 10° | 159133 | 159290 | 159438 |
| 15° | 153308 | 153468 | 153468 |
| 20° | 145340 | 145505 | 145825 |
| 25° | 128140 | 135323 | 127638 |
| 30° | 96682 | 119939 | 97555 |
| 35° | 60633 | 93345 | 62668 |
| 40° | 34195 | 58109 | 34195 |
| 45° | 14344 | 29332 | 14139 |
| 50° | 1176 | 11303 | 1417 |
| 55° | 524 | 2381 | 524 |
| 60° | 601 | 310 | 601 |
| 65° | 367 | 367 | 367 |
| 70° | 453 | 453 | 453 |
| 75° | 599 | 599 | 599 |
| 80° | 0 | 893 | 893 |
| 85° | 0 | 1778 | 1778 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°

Vertical Angle: 45°

Luminance: 29332 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 157.9 | 9.4 |
| 10°-20° | 429.6 | 25.5 |
| 20°-30° | 557.3 | 33.1 |
| 30°-40° | 396.2 | 23.5 |
| 40°-50° | 128.5 | 7.6 |
| 50°-60° | 9.3 | 0.6 |
| 60°-70° | 1.6 | 0.1 |
| 70°-80° | 1.7 | 0.1 |
| 80°-90° | 1.1 | 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° | 1144.8 | 68.0 |
| 0°-40° | 1541.0 | 91.6 |
| 0°-60° | 1678.7 | 99.7 |
| 0°-90° | 1683.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1683.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1685 | 1685 | 1685 | 1685 | 1685 | |
| 5° | 1671 | 1672 | 1671 | 1671 | 1669 | 158 |
| 15° | 1529 | 1533 | 1530 | 1533 | 1530 | 429 |
| 25° | 1199 | 1230 | 1266 | 1236 | 1194 | 537 |
| 35° | 513 | 606 | 789 | 613 | 530 | 328 |
| 45° | 105 | 148 | 214 | 152 | 103 | 87 |
| 55° | 3 | 3 | 14 | 3 | 3 | 4 |
| 65° | 2 | 2 | 2 | 2 | 2 | 2 |
| 75° | 2 | 2 | 2 | 2 | 2 | 1 |
| 85° | 0 | 0 | 2 | 2 | 2 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1684.9 | 1684.9 | 1684.9 | 1684.9 | 1684.9 |
| 2.5° | 1684.9 | 1684.9 | 1683.3 | 1683.3 | 1684.9 |
| 5° | 1670.8 | 1672.4 | 1670.8 | 1670.8 | 1669.3 |
| 7.5° | 1652.1 | 1652.1 | 1650.5 | 1650.5 | 1650.5 |
| 10° | 1617.7 | 1619.3 | 1619.3 | 1619.3 | 1620.8 |
| 12.5° | 1580.2 | 1580.2 | 1580.2 | 1580.2 | 1580.2 |
| 15° | 1528.6 | 1533.3 | 1530.2 | 1533.3 | 1530.2 |
| 17.5° | 1477.0 | 1477.0 | 1475.5 | 1478.6 | 1475.5 |
| 20° | 1409.8 | 1409.8 | 1411.4 | 1414.5 | 1414.5 |
| 22.5° | 1320.7 | 1336.4 | 1342.6 | 1339.5 | 1323.8 |
| 25° | 1198.8 | 1230.1 | 1266.0 | 1236.3 | 1194.1 |
| 27.5° | 1045.6 | 1105.0 | 1187.9 | 1114.4 | 1048.8 |
| 30° | 864.3 | 953.4 | 1072.2 | 956.5 | 872.1 |
| 32.5° | 676.8 | 779.9 | 937.8 | 787.7 | 683.0 |
| 35° | 512.7 | 606.4 | 789.3 | 612.7 | 529.9 |
| 37.5° | 378.2 | 464.2 | 626.8 | 467.3 | 389.2 |
| 40° | 270.4 | 332.9 | 459.5 | 339.2 | 270.4 |
| 42.5° | 173.5 | 236.0 | 323.5 | 237.6 | 181.3 |
| 45° | 104.7 | 148.5 | 214.1 | 151.6 | 103.2 |
| 47.5° | 46.9 | 84.4 | 132.9 | 87.5 | 46.9 |
| 50° | 7.8 | 34.4 | 75.0 | 35.9 | 9.4 |
| 52.5° | 4.7 | 6.3 | 35.9 | 6.3 | 4.7 |
| 55° | 3.1 | 3.1 | 14.1 | 3.1 | 3.1 |
| 57.5° | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 60° | 3.1 | 1.6 | 1.6 | 1.6 | 3.1 |
| 62.5° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 65° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 67.5° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 70° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 72.5° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 75° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 77.5° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 80° | 0.0 | 1.6 | 1.6 | 1.6 | 1.6 |
| 82.5° | 0.0 | 1.6 | 1.6 | 1.6 | 1.6 |
| 85° | 0.0 | 0.0 | 1.6 | 1.6 | 1.6 |
| 87.5° | 0.0 | 0.0 | 1.6 | 1.6 | 1.6 |
| 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

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Scaled Data Report





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

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