

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: P837663

Luminaire Tested: HCSQ455D010-HM44560935-41SQC

Issue Date: 5/17/2024

**Test Information**

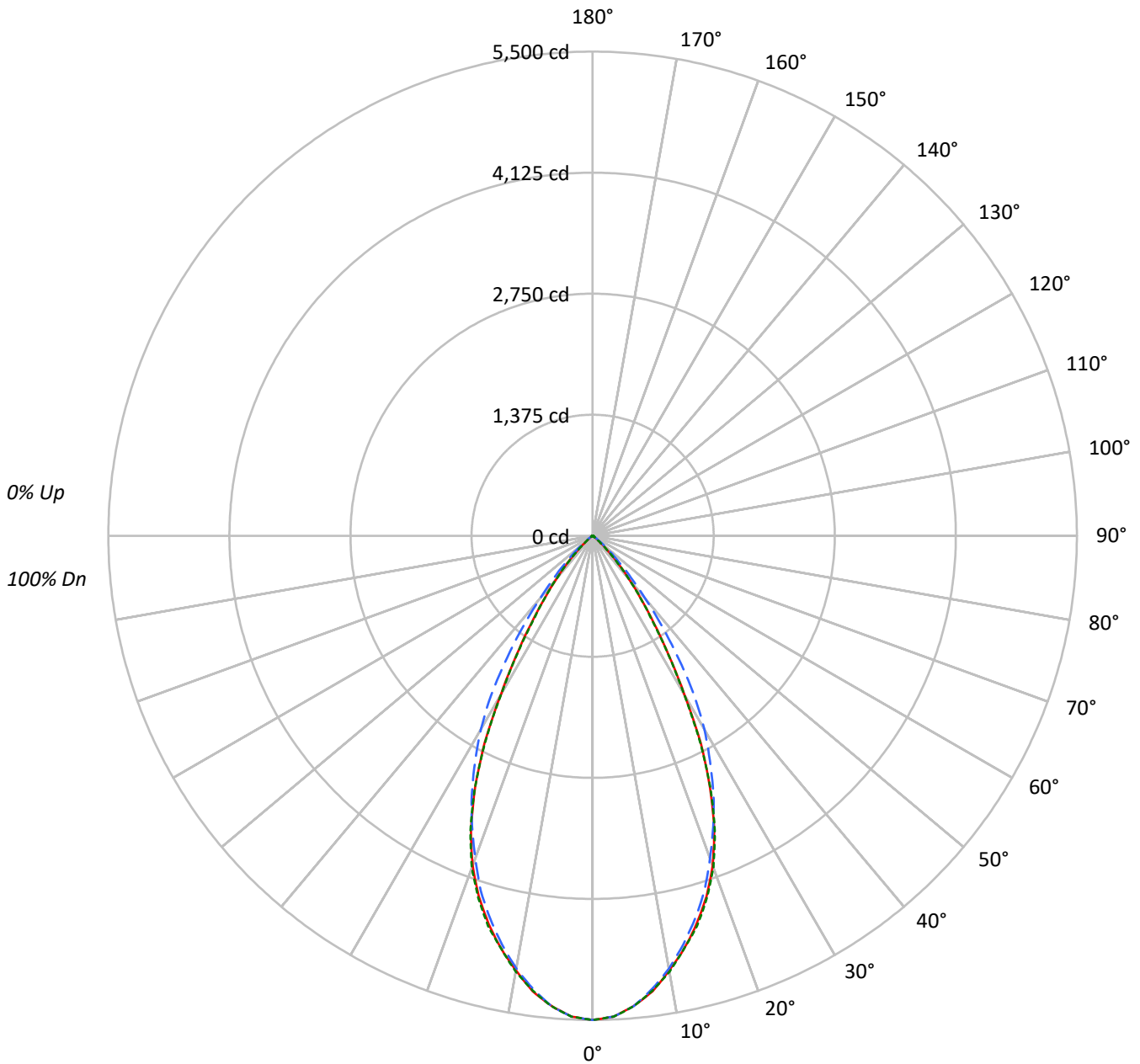
Test Method: LM-79-2019  
Report Number: P837663  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-1)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ455D010-HM44560935-41SQC  
Description: 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: 4445.0 lumens  
Efficiency: N/A  
Efficacy: 82.3 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): 54  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| RF  | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |     |     | 20  |     |     |  |  |
| RC  | 80  |     |     |     |     | 70  |     |     |     |     | 50  |     |     |     |     | 30  |     |     |  |  |
| RW  | 70  | 50  | 30  | 10  | 70  | 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°  | 532863 | 532863 | 532863 |
| 5°  | 521440 | 521654 | 521654 |
| 10° | 493207 | 491013 | 494525 |
| 15° | 457626 | 451358 | 460083 |
| 20° | 410793 | 401587 | 413329 |
| 25° | 337399 | 347179 | 338596 |
| 30° | 233232 | 283671 | 231487 |
| 35° | 143619 | 200373 | 140189 |
| 40° | 81024  | 117154 | 80455  |
| 45° | 37004  | 58719  | 35484  |
| 50° | 9419   | 23556  | 9751   |
| 55° | 4526   | 7161   | 4155   |
| 60° | 3023   | 2596   | 3468   |
| 65° | 2567   | 2040   | 2567   |
| 70° | 1898   | 1898   | 2521   |
| 75° | 1684   | 1684   | 2508   |
| 80° | 2510   | 2510   | 2510   |
| 85° | 2445   | 5002   | 5002   |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 58719 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 500.4  | 11.3      |
| 10°-20°   | 1263.7 | 28.4      |
| 20°-30°   | 1444.6 | 32.5      |
| 30°-40°   | 896.7  | 20.2      |
| 40°-50°   | 282.6  | 6.4       |
| 50°-60°   | 36.6   | 0.8       |
| 60°-70°   | 10.8   | 0.2       |
| 70°-80°   | 5.8    | 0.1       |
| 80°-90°   | 3.9    | 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°    | 3208.6 | 72.2      |
| 0°-40°    | 4105.4 | 92.4      |
| 0°-60°    | 4424.5 | 99.5      |
| 0°-90°    | 4445.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4445.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 5500 | 5500  | 5500 | 5500  | 5500 |      |
| 5°  | 5362 | 5358  | 5364 | 5360  | 5364 | 501  |
| 15° | 4563 | 4529  | 4500 | 4529  | 4587 | 1272 |
| 25° | 3156 | 3201  | 3248 | 3201  | 3168 | 1416 |
| 35° | 1214 | 1402  | 1694 | 1368  | 1185 | 780  |
| 45° | 270  | 324   | 429  | 326   | 259  | 228  |
| 55° | 27   | 27    | 42   | 27    | 25   | 26   |
| 65° | 11   | 11    | 9    | 11    | 11   | 11   |
| 75° | 4    | 4     | 4    | 4     | 7    | 6    |
| 85° | 2    | 4     | 4    | 4     | 4    | 2    |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 5500.5 | 5500.5 | 5500.5 | 5500.5 | 5500.5 |
| 2.5°  | 5467.0 | 5471.4 | 5467.0 | 5475.9 | 5467.0 |
| 5°    | 5362.1 | 5357.6 | 5364.3 | 5359.8 | 5364.3 |
| 7.5°  | 5219.2 | 5192.4 | 5190.2 | 5208.0 | 5210.3 |
| 10°   | 5013.8 | 5007.1 | 4991.5 | 5007.1 | 5027.2 |
| 12.5° | 4804.0 | 4777.2 | 4754.9 | 4786.1 | 4804.0 |
| 15°   | 4562.9 | 4529.4 | 4500.4 | 4529.4 | 4587.4 |
| 17.5° | 4297.2 | 4250.4 | 4225.8 | 4259.3 | 4315.1 |
| 20°   | 3984.7 | 3935.6 | 3895.4 | 3924.4 | 4009.3 |
| 22.5° | 3609.7 | 3605.2 | 3578.4 | 3594.1 | 3625.3 |
| 25°   | 3156.5 | 3201.2 | 3248.0 | 3201.2 | 3167.7 |
| 27.5° | 2658.7 | 2779.3 | 2886.4 | 2745.8 | 2638.6 |
| 30°   | 2085.0 | 2268.1 | 2535.9 | 2254.7 | 2069.4 |
| 32.5° | 1611.7 | 1803.7 | 2145.3 | 1779.2 | 1598.4 |
| 35°   | 1214.4 | 1401.9 | 1694.3 | 1368.4 | 1185.4 |
| 37.5° | 892.9  | 1033.6 | 1288.1 | 1024.6 | 892.9  |
| 40°   | 640.7  | 732.2  | 926.4  | 730.0  | 636.2  |
| 42.5° | 444.2  | 504.5  | 647.4  | 500.0  | 430.8  |
| 45°   | 270.1  | 323.7  | 428.6  | 325.9  | 259.0  |
| 47.5° | 142.9  | 205.4  | 270.1  | 196.4  | 142.9  |
| 50°   | 62.5   | 109.4  | 156.3  | 107.2  | 64.7   |
| 52.5° | 33.5   | 46.9   | 84.8   | 46.9   | 33.5   |
| 55°   | 26.8   | 26.8   | 42.4   | 26.8   | 24.6   |
| 57.5° | 20.1   | 20.1   | 22.3   | 20.1   | 20.1   |
| 60°   | 15.6   | 15.6   | 13.4   | 15.6   | 17.9   |
| 62.5° | 13.4   | 13.4   | 11.2   | 13.4   | 13.4   |
| 65°   | 11.2   | 11.2   | 8.9    | 11.2   | 11.2   |
| 67.5° | 8.9    | 8.9    | 8.9    | 8.9    | 8.9    |
| 70°   | 6.7    | 6.7    | 6.7    | 8.9    | 8.9    |
| 72.5° | 6.7    | 6.7    | 6.7    | 6.7    | 6.7    |
| 75°   | 4.5    | 4.5    | 4.5    | 4.5    | 6.7    |
| 77.5° | 4.5    | 4.5    | 4.5    | 4.5    | 4.5    |
| 80°   | 4.5    | 4.5    | 4.5    | 4.5    | 4.5    |
| 82.5° | 2.2    | 4.5    | 4.5    | 4.5    | 4.5    |
| 85°   | 2.2    | 4.5    | 4.5    | 4.5    | 4.5    |
| 87.5° | 2.2    | 2.2    | 4.5    | 4.5    | 4.5    |
| 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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Peachtree City, GA 30269

Scaled Data Report







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

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