

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: P837193

Luminaire Tested: HCSQ405D010-HM40525827-41SQC

Issue Date: 5/17/2024



**Test Information**

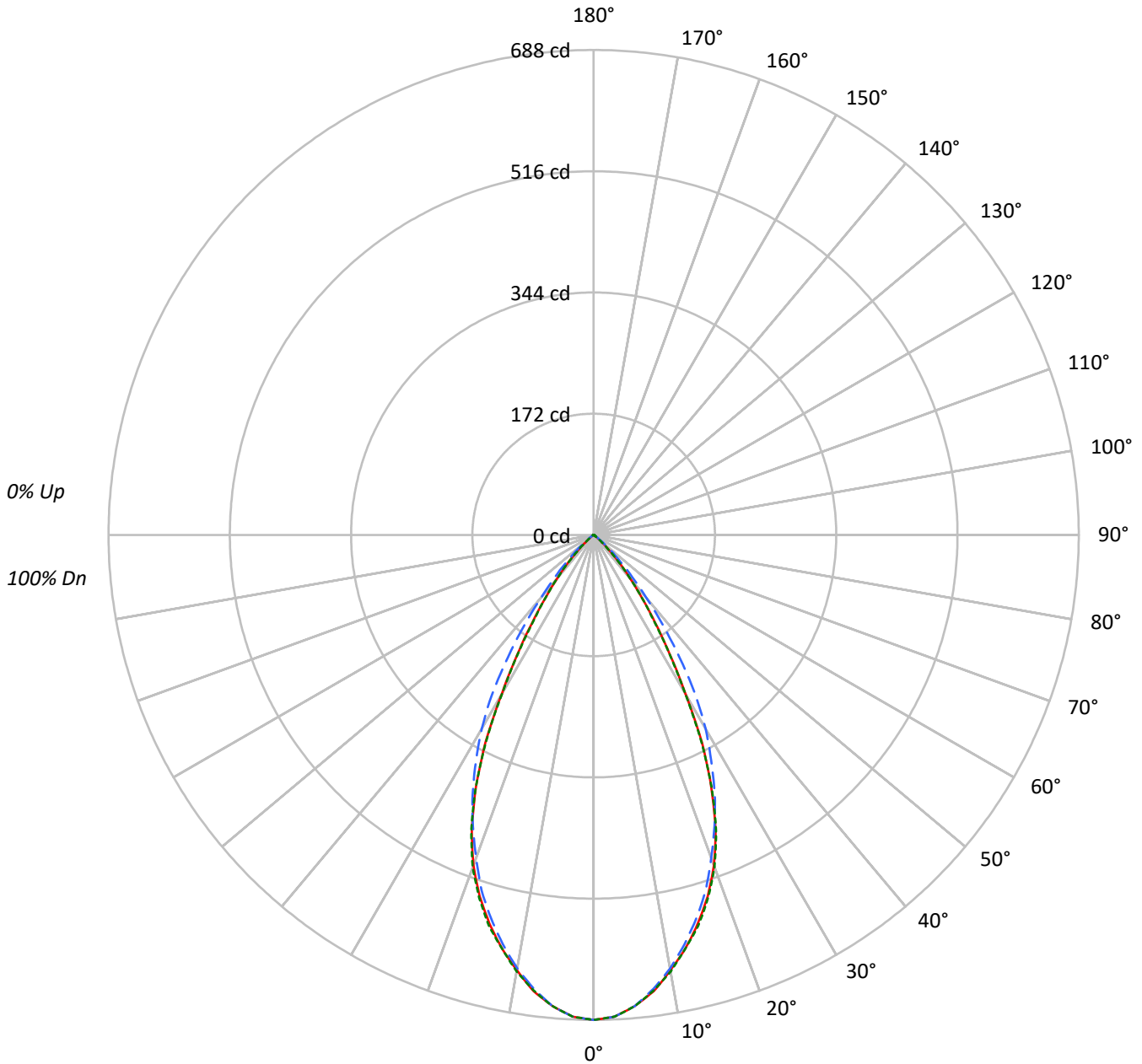
Test Method: LM-79-2019  
Report Number: P837193  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-1)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ405D010-HM40525827-41SQC  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 556.1 lumens  
Efficiency: N/A  
Efficacy: 92.7 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): 6  
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: 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  |     |     |     |     |     |     |     |     | 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  | 66  | 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°  | 66660 | 66660 | 66660 |
| 5°  | 65232 | 65252 | 65252 |
| 10° | 61698 | 61422 | 61865 |
| 15° | 57247 | 56465 | 57558 |
| 20° | 51392 | 50237 | 51701 |
| 25° | 42211 | 43429 | 42361 |
| 30° | 29174 | 35483 | 28961 |
| 35° | 17964 | 25072 | 17538 |
| 40° | 10130 | 14657 | 10066 |
| 45° | 4631  | 7343  | 4439  |
| 50° | 1176  | 2939  | 1221  |
| 55° | 574   | 895   | 524   |
| 60° | 388   | 329   | 426   |
| 65° | 321   | 252   | 321   |
| 70° | 227   | 227   | 312   |
| 75° | 225   | 225   | 299   |
| 80° | 335   | 335   | 335   |
| 85° | 333   | 667   | 667   |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 7343 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 62.6   | 11.3      |
| 10°-20°   | 158.1  | 28.4      |
| 20°-30°   | 180.7  | 32.5      |
| 30°-40°   | 112.2  | 20.2      |
| 40°-50°   | 35.4   | 6.4       |
| 50°-60°   | 4.6    | 0.8       |
| 60°-70°   | 1.4    | 0.2       |
| 70°-80°   | 0.7    | 0.1       |
| 80°-90°   | 0.5    | 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°    | 401.4  | 72.2      |
| 0°-40°    | 513.6  | 92.3      |
| 0°-60°    | 553.5  | 99.5      |
| 0°-90°    | 556.1  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 556.1  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 688 | 688   | 688 | 688   | 688 |      |
| 5°  | 671 | 670   | 671 | 670   | 671 | 63   |
| 15° | 571 | 567   | 563 | 567   | 574 | 159  |
| 25° | 395 | 400   | 406 | 400   | 396 | 177  |
| 35° | 152 | 175   | 212 | 171   | 148 | 98   |
| 45° | 34  | 40    | 54  | 41    | 32  | 29   |
| 55° | 3   | 3     | 5   | 3     | 3   | 3    |
| 65° | 1   | 1     | 1   | 1     | 1   | 1    |
| 75° | 1   | 1     | 1   | 1     | 1   | 1    |
| 85° | 0   | 1     | 1   | 1     | 1   | 0    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 688.1 | 688.1 | 688.1 | 688.1 | 688.1 |
| 2.5°  | 683.9 | 684.5 | 683.9 | 685.0 | 683.9 |
| 5°    | 670.8 | 670.2 | 671.0 | 670.5 | 671.0 |
| 7.5°  | 652.9 | 649.5 | 649.3 | 651.5 | 651.8 |
| 10°   | 627.2 | 626.4 | 624.4 | 626.4 | 628.9 |
| 12.5° | 601.0 | 597.6 | 594.8 | 598.7 | 601.0 |
| 15°   | 570.8 | 566.6 | 563.0 | 566.6 | 573.9 |
| 17.5° | 537.6 | 531.7 | 528.6 | 532.8 | 539.8 |
| 20°   | 498.5 | 492.3 | 487.3 | 490.9 | 501.5 |
| 22.5° | 451.6 | 451.0 | 447.6 | 449.6 | 453.5 |
| 25°   | 394.9 | 400.5 | 406.3 | 400.5 | 396.3 |
| 27.5° | 332.6 | 347.7 | 361.1 | 343.5 | 330.1 |
| 30°   | 260.8 | 283.7 | 317.2 | 282.0 | 258.9 |
| 32.5° | 201.6 | 225.6 | 268.4 | 222.6 | 199.9 |
| 35°   | 151.9 | 175.4 | 212.0 | 171.2 | 148.3 |
| 37.5° | 111.7 | 129.3 | 161.1 | 128.2 | 111.7 |
| 40°   | 80.1  | 91.6  | 115.9 | 91.3  | 79.6  |
| 42.5° | 55.6  | 63.1  | 81.0  | 62.6  | 53.9  |
| 45°   | 33.8  | 40.5  | 53.6  | 40.8  | 32.4  |
| 47.5° | 17.9  | 25.7  | 33.8  | 24.6  | 17.9  |
| 50°   | 7.8   | 13.7  | 19.5  | 13.4  | 8.1   |
| 52.5° | 4.2   | 5.9   | 10.6  | 5.9   | 4.2   |
| 55°   | 3.4   | 3.4   | 5.3   | 3.4   | 3.1   |
| 57.5° | 2.5   | 2.5   | 2.8   | 2.5   | 2.5   |
| 60°   | 2.0   | 2.0   | 1.7   | 2.0   | 2.2   |
| 62.5° | 1.7   | 1.7   | 1.4   | 1.7   | 1.7   |
| 65°   | 1.4   | 1.4   | 1.1   | 1.4   | 1.4   |
| 67.5° | 1.1   | 1.1   | 1.1   | 1.1   | 1.1   |
| 70°   | 0.8   | 0.8   | 0.8   | 1.1   | 1.1   |
| 72.5° | 0.8   | 0.8   | 0.8   | 0.8   | 0.8   |
| 75°   | 0.6   | 0.6   | 0.6   | 0.6   | 0.8   |
| 77.5° | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   |
| 80°   | 0.6   | 0.6   | 0.6   | 0.6   | 0.6   |
| 82.5° | 0.3   | 0.6   | 0.6   | 0.6   | 0.6   |
| 85°   | 0.3   | 0.6   | 0.6   | 0.6   | 0.6   |
| 87.5° | 0.3   | 0.3   | 0.6   | 0.6   | 0.6   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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Scaled Data Report



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Scaled Data Report







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

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