

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



Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO COMMERCIAL

Report Number: P580005

Luminaire Tested: **HCC4S20D010SL-HM40525830-41WWBB**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P580005  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-17)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/9/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HCC4S20D010SL-HM40525830-41WWBB  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT CYLINDER  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

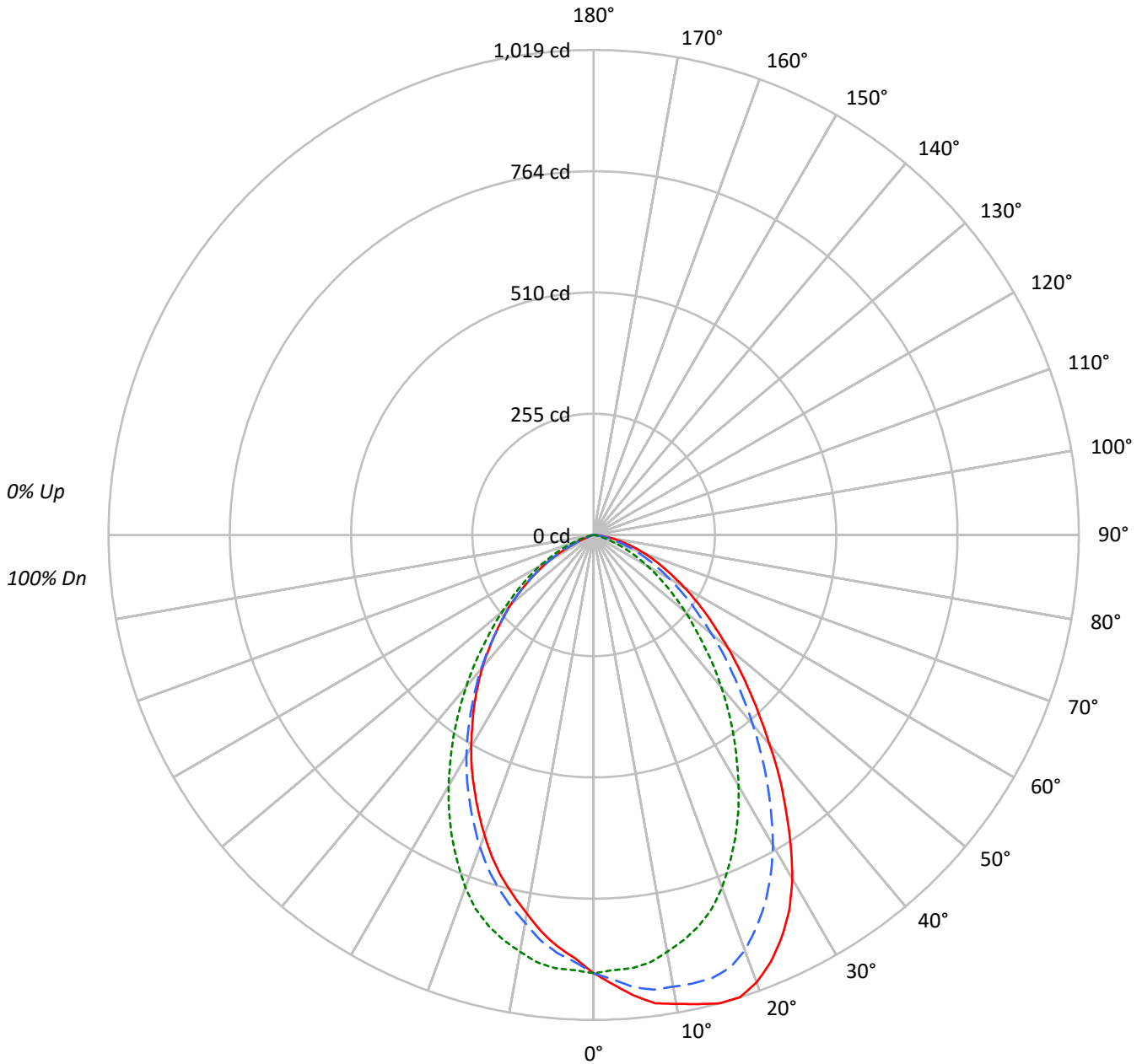
Lumens per Lamp: N/A  
Luminaire Lumens: 1590.2 lumens  
Efficiency: N/A  
Efficacy: 79.5 lumens/watt  
Spacing Criteria (0/90/45): 1.11 / 1.04 / 1.12  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 20  
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: 25 FT



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### Luminous Intensity Polar Plot



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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |  |  |  |  |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|--|--|--|--|---|
| RF  | 20  |     |     |     |     | 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   | 111 | 108 | 104 | 101 | 109 | 105 | 102 | 100 | 101 | 99  | 97  | 97  | 95  | 94  | 94  | 92  | 91  | 89  |    |    |    |  |  |  |  |   |
| 2   | 103 | 97  | 91  | 87  | 101 | 95  | 90  | 86  | 92  | 87  | 84  | 88  | 85  | 82  | 85  | 83  | 80  | 78  |    |    |    |  |  |  |  |   |
| 3   | 96  | 87  | 80  | 75  | 94  | 86  | 79  | 74  | 83  | 78  | 73  | 80  | 76  | 72  | 78  | 74  | 71  | 69  |    |    |    |  |  |  |  |   |
| 4   | 89  | 79  | 72  | 66  | 87  | 78  | 71  | 65  | 75  | 69  | 65  | 73  | 68  | 64  | 71  | 67  | 63  | 61  |    |    |    |  |  |  |  |   |
| 5   | 83  | 72  | 64  | 58  | 81  | 71  | 64  | 58  | 69  | 62  | 58  | 67  | 61  | 57  | 65  | 60  | 56  | 55  |    |    |    |  |  |  |  |   |
| 6   | 77  | 66  | 58  | 52  | 75  | 65  | 57  | 52  | 63  | 57  | 52  | 61  | 56  | 51  | 60  | 55  | 51  | 49  |    |    |    |  |  |  |  |   |
| 7   | 72  | 60  | 53  | 47  | 71  | 59  | 52  | 47  | 58  | 51  | 47  | 57  | 51  | 46  | 55  | 50  | 46  | 44  |    |    |    |  |  |  |  |   |
| 8   | 68  | 56  | 48  | 43  | 66  | 55  | 48  | 43  | 54  | 47  | 42  | 53  | 47  | 42  | 51  | 46  | 42  | 40  |    |    |    |  |  |  |  |   |
| 9   | 64  | 52  | 44  | 39  | 62  | 51  | 44  | 39  | 50  | 43  | 39  | 49  | 43  | 39  | 48  | 43  | 39  | 37  |    |    |    |  |  |  |  |   |
| 10  | 60  | 48  | 41  | 36  | 59  | 47  | 41  | 36  | 46  | 40  | 36  | 46  | 40  | 36  | 45  | 39  | 36  | 34  |    |    |    |  |  |  |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 113564 | 113564 | 113564 |
| 5°  | 120313 | 113169 | 107510 |
| 10° | 125311 | 111383 | 101213 |
| 15° | 130110 | 108696 | 95160  |
| 20° | 131327 | 103474 | 88011  |
| 25° | 127087 | 95703  | 80569  |
| 30° | 118813 | 86724  | 73307  |
| 35° | 105886 | 77096  | 65862  |
| 40° | 92568  | 67063  | 58626  |
| 45° | 80625  | 56884  | 50726  |
| 50° | 70367  | 48242  | 43463  |
| 55° | 61675  | 39977  | 35203  |
| 60° | 53951  | 32317  | 25829  |
| 65° | 46990  | 24079  | 14535  |
| 70° | 41077  | 15580  | 4724   |
| 75° | 33741  | 8102   | 1239   |
| 80° | 25074  | 3765   | 923    |
| 85° | 14718  | 1840   | 1840   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 86.9   | 5.5       |
| 10°-20°   | 243.2  | 15.3      |
| 20°-30°   | 336.2  | 21.1      |
| 30°-40°   | 338.1  | 21.3      |
| 40°-50°   | 272.8  | 17.2      |
| 50°-60°   | 184.5  | 11.6      |
| 60°-70°   | 93.9   | 5.9       |
| 70°-80°   | 30.1   | 1.9       |
| 80°-90°   | 4.6    | 0.3       |
| 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°    | 666.3  | 41.9      |
| 0°-40°    | 1004.4 | 63.2      |
| 0°-60°    | 1461.7 | 91.9      |
| 0°-90°    | 1590.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1590.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45° | 90° | 135° | 180° | Flux |
|-----|------|-----|-----|------|------|------|
| 0°  | 921  | 921 | 921 | 921  | 921  |      |
| 5°  | 972  | 953 | 914 | 881  | 868  | 94   |
| 15° | 1019 | 964 | 851 | 770  | 745  | 287  |
| 25° | 934  | 853 | 703 | 617  | 592  | 427  |
| 35° | 703  | 635 | 512 | 448  | 437  | 439  |
| 45° | 462  | 414 | 326 | 291  | 291  | 358  |
| 55° | 287  | 248 | 186 | 162  | 164  | 258  |
| 65° | 161  | 131 | 82  | 54   | 50   | 161  |
| 75° | 71   | 50  | 17  | 4    | 3    | 76   |
| 85° | 10   | 5   | 1   | 1    | 1    | 14   |
| 90° | 0    | 0   | 0   | 0    | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  |
|-------|--------|--------|-------|-------|-------|--------|-------|--------|-------|
| 0°    | 920.7  | 920.7  | 920.7 | 920.7 | 920.7 | 920.7  | 920.7 | 920.7  | 920.7 |
| 2.5°  | 945.5  | 940.3  | 935.0 | 925.9 | 915.4 | 905.0  | 898.3 | 893.2  | 890.5 |
| 5°    | 971.7  | 965.2  | 953.4 | 933.8 | 914.0 | 895.8  | 881.4 | 872.2  | 868.3 |
| 7.5°  | 992.6  | 983.6  | 963.8 | 936.4 | 906.2 | 877.5  | 859.1 | 846.0  | 840.8 |
| 10°   | 1000.5 | 990.1  | 963.8 | 927.2 | 889.3 | 853.8  | 827.7 | 814.6  | 808.1 |
| 12.5° | 1009.7 | 997.9  | 965.2 | 919.3 | 872.2 | 830.3  | 800.1 | 783.2  | 776.6 |
| 15°   | 1018.9 | 1003.2 | 963.8 | 907.5 | 851.2 | 802.8  | 770.1 | 753.0  | 745.2 |
| 17.5° | 1018.9 | 1000.5 | 953.4 | 887.9 | 823.8 | 772.6  | 736.0 | 716.3  | 709.8 |
| 20°   | 1000.5 | 979.5  | 928.5 | 856.5 | 788.3 | 733.4  | 698.1 | 678.3  | 670.5 |
| 22.5° | 971.7  | 948.1  | 893.2 | 818.5 | 746.5 | 692.8  | 657.5 | 639.1  | 631.2 |
| 25°   | 933.8  | 910.1  | 852.6 | 775.3 | 703.2 | 649.5  | 616.9 | 599.8  | 592.0 |
| 27.5° | 889.3  | 863.0  | 805.4 | 728.1 | 657.5 | 606.3  | 576.3 | 560.5  | 554.0 |
| 30°   | 834.2  | 809.3  | 753.0 | 677.1 | 608.9 | 561.8  | 534.3 | 519.9  | 514.7 |
| 32.5° | 770.1  | 749.1  | 694.0 | 623.4 | 559.2 | 516.0  | 491.1 | 479.3  | 474.1 |
| 35°   | 703.2  | 683.6  | 635.2 | 569.7 | 512.0 | 471.4  | 447.9 | 440.0  | 437.4 |
| 37.5° | 640.4  | 623.4  | 576.3 | 516.0 | 463.6 | 428.3  | 407.3 | 402.0  | 399.4 |
| 40°   | 574.9  | 563.2  | 519.9 | 464.9 | 416.5 | 385.0  | 368.0 | 364.1  | 364.1 |
| 42.5° | 516.0  | 502.8  | 464.9 | 415.1 | 372.0 | 340.5  | 328.7 | 324.8  | 326.1 |
| 45°   | 462.2  | 449.2  | 413.8 | 368.0 | 326.1 | 299.9  | 290.8 | 290.8  | 290.8 |
| 47.5° | 412.6  | 400.8  | 368.0 | 320.8 | 286.8 | 265.9  | 256.7 | 256.7  | 258.0 |
| 50°   | 366.7  | 358.8  | 322.2 | 281.6 | 251.4 | 231.8  | 225.3 | 223.9  | 226.5 |
| 52.5° | 323.5  | 314.3  | 281.6 | 244.9 | 216.1 | 200.4  | 193.8 | 192.5  | 193.8 |
| 55°   | 286.8  | 276.3  | 247.5 | 212.2 | 185.9 | 170.2  | 162.4 | 161.0  | 163.7 |
| 57.5° | 251.4  | 243.6  | 213.5 | 182.0 | 157.1 | 141.4  | 134.9 | 132.2  | 133.6 |
| 60°   | 218.7  | 210.8  | 183.3 | 153.2 | 131.0 | 115.3  | 106.1 | 103.5  | 104.7 |
| 62.5° | 188.6  | 182.0  | 155.9 | 127.1 | 104.7 | 90.4   | 81.2  | 74.7   | 77.3  |
| 65°   | 161.0  | 154.5  | 131.0 | 102.2 | 82.5  | 66.8   | 53.7  | 48.4   | 49.8  |
| 67.5° | 137.5  | 129.6  | 107.4 | 81.2  | 61.6  | 44.5   | 30.2  | 27.5   | 27.5  |
| 70°   | 113.9  | 106.1  | 86.5  | 62.9  | 43.2  | 23.6   | 13.1  | 13.1   | 13.1  |
| 72.5° | 91.6   | 85.1   | 66.8  | 47.1  | 27.5  | 10.4   | 5.3   | 5.3    | 5.3   |
| 75°   | 70.8   | 65.5   | 49.8  | 32.7  | 17.0  | 5.3    | 3.9   | 2.6    | 2.6   |
| 77.5° | 52.4   | 47.1   | 35.3  | 22.3  | 10.4  | 2.6    | 2.6   | 2.6    | 2.6   |
| 80°   | 35.3   | 31.4   | 23.6  | 13.1  | 5.3   | 1.3    | 1.3   | 1.3    | 1.3   |
| 82.5° | 21.0   | 18.4   | 13.1  | 6.5   | 2.6   | 1.3    | 1.3   | 1.3    | 1.3   |
| 85°   | 10.4   | 7.9    | 5.3   | 2.6   | 1.3   | 1.3    | 1.3   | 1.3    | 1.3   |
| 87.5° | 2.6    | 1.3    | 1.3   | 1.3   | 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   |

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Scaled Data Report



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Scaled Data Report





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Scaled Data Report



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

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