

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: P580036

Luminaire Tested: **HCC4S20D010MB-HM40525840-41WWBB**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P580036  
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: HCC4S20D010MB-HM40525840-41WWBB  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
CYLINDER  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

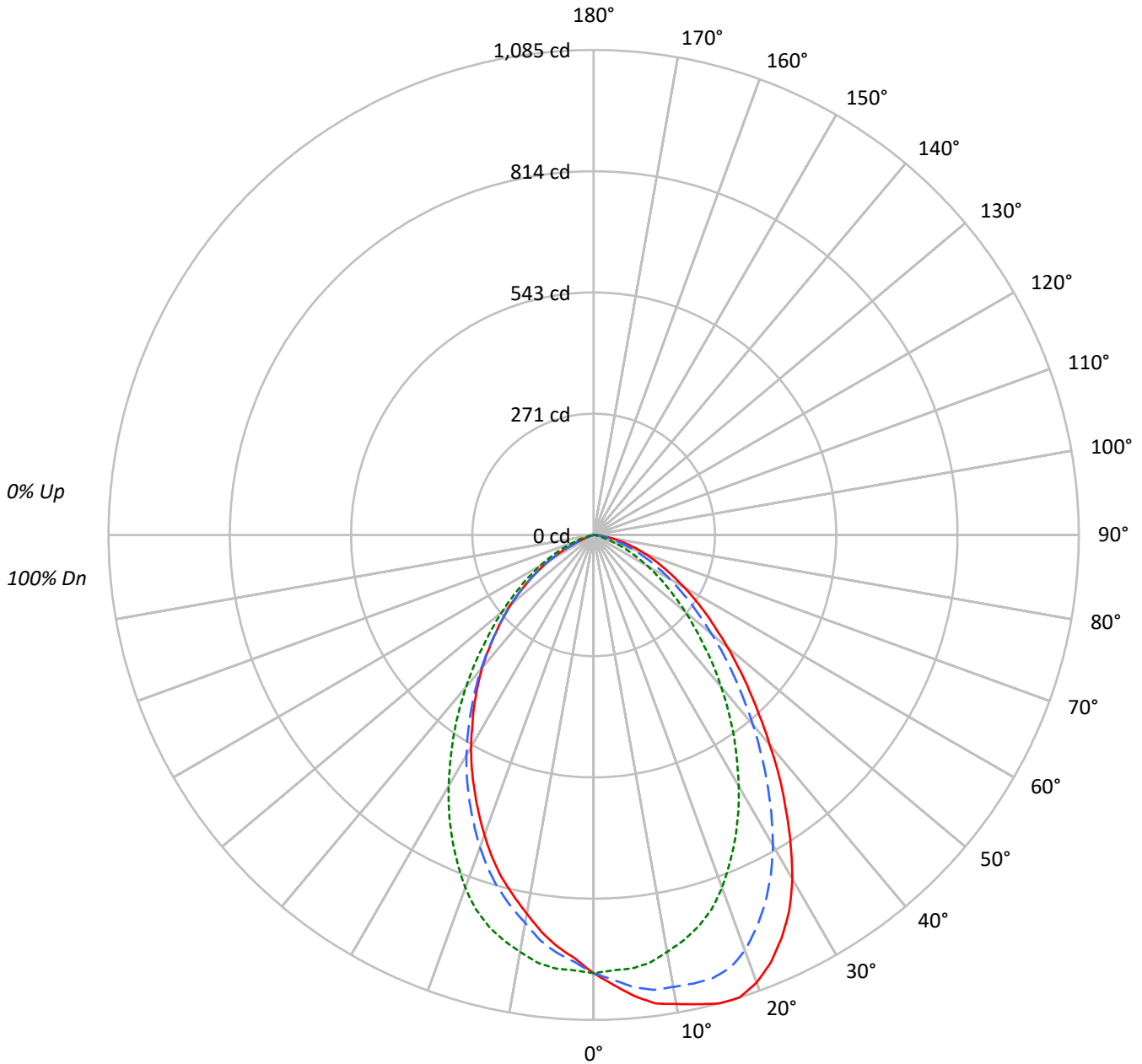
Lumens per Lamp: N/A  
Luminaire Lumens: 1693.8 lumens  
Efficiency: N/A  
Efficacy: 84.7 lumens/watt  
Spacing Criteria (0/90/45): 1.11 / 1.04 / 1.12  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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°  | 120965 | 120965 | 120965 |
| 5°  | 128163 | 120560 | 114506 |
| 10° | 133477 | 118635 | 107801 |
| 15° | 138589 | 115783 | 101353 |
| 20° | 139886 | 110220 | 93747  |
| 25° | 135362 | 101950 | 85809  |
| 30° | 126561 | 92378  | 78079  |
| 35° | 112797 | 82125  | 70154  |
| 40° | 98606  | 71411  | 62442  |
| 45° | 85893  | 60582  | 54023  |
| 50° | 74953  | 51389  | 46303  |
| 55° | 65675  | 42601  | 37483  |
| 60° | 57479  | 34413  | 27531  |
| 65° | 50083  | 25655  | 15469  |
| 70° | 43782  | 16589  | 5049   |
| 75° | 35933  | 8626   | 1334   |
| 80° | 26708  | 3978   | 994    |
| 85° | 15709  | 1981   | 1981   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 92.6   | 5.5       |
| 10°-20°   | 259.0  | 15.3      |
| 20°-30°   | 358.1  | 21.1      |
| 30°-40°   | 360.1  | 21.3      |
| 40°-50°   | 290.6  | 17.2      |
| 50°-60°   | 196.5  | 11.6      |
| 60°-70°   | 100.0  | 5.9       |
| 70°-80°   | 32.0   | 1.9       |
| 80°-90°   | 4.9    | 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°    | 709.7  | 41.9      |
| 0°-40°    | 1069.8 | 63.2      |
| 0°-60°    | 1556.9 | 91.9      |
| 0°-90°    | 1693.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1693.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90° | 135° | 180° | Flux |
|-----|------|------|-----|------|------|------|
| 0°  | 981  | 981  | 981 | 981  | 981  |      |
| 5°  | 1035 | 1016 | 974 | 939  | 925  | 100  |
| 15° | 1085 | 1027 | 907 | 820  | 794  | 306  |
| 25° | 995  | 908  | 749 | 657  | 630  | 455  |
| 35° | 749  | 676  | 545 | 477  | 466  | 468  |
| 45° | 492  | 441  | 347 | 310  | 310  | 382  |
| 55° | 305  | 264  | 198 | 173  | 174  | 274  |
| 65° | 172  | 140  | 88  | 57   | 53   | 172  |
| 75° | 75   | 53   | 18  | 4    | 3    | 81   |
| 85° | 11   | 6    | 1   | 1    | 1    | 15   |
| 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°    | 980.7  | 980.7  | 980.7  | 980.7 | 980.7 | 980.7  | 980.7 | 980.7  | 980.7 |
| 2.5°  | 1007.2 | 1001.6 | 995.9  | 986.2 | 975.1 | 963.9  | 956.9 | 951.3  | 948.6 |
| 5°    | 1035.1 | 1028.1 | 1015.6 | 994.6 | 973.7 | 954.1  | 938.8 | 929.1  | 924.8 |
| 7.5°  | 1057.3 | 1047.6 | 1026.7 | 997.4 | 965.3 | 934.6  | 915.1 | 901.1  | 895.6 |
| 10°   | 1065.7 | 1054.6 | 1026.7 | 987.6 | 947.2 | 909.5  | 881.6 | 867.6  | 860.7 |
| 12.5° | 1075.5 | 1062.9 | 1028.1 | 979.2 | 929.1 | 884.3  | 852.3 | 834.2  | 827.2 |
| 15°   | 1085.3 | 1068.5 | 1026.7 | 966.7 | 906.7 | 855.1  | 820.2 | 802.1  | 793.7 |
| 17.5° | 1085.3 | 1065.7 | 1015.6 | 945.8 | 877.5 | 823.0  | 784.0 | 763.0  | 756.1 |
| 20°   | 1065.7 | 1043.4 | 989.1  | 912.3 | 839.7 | 781.1  | 743.5 | 722.6  | 714.2 |
| 22.5° | 1035.1 | 1009.9 | 951.3  | 871.8 | 795.1 | 737.9  | 700.2 | 680.7  | 672.4 |
| 25°   | 994.6  | 969.4  | 908.1  | 825.8 | 749.1 | 691.9  | 657.0 | 638.9  | 630.5 |
| 27.5° | 947.2  | 919.2  | 857.8  | 775.6 | 700.2 | 645.9  | 613.8 | 597.0  | 590.0 |
| 30°   | 888.6  | 862.1  | 802.1  | 721.2 | 648.6 | 598.4  | 569.1 | 553.8  | 548.2 |
| 32.5° | 820.2  | 797.9  | 739.4  | 664.0 | 595.6 | 549.6  | 523.1 | 510.5  | 504.9 |
| 35°   | 749.1  | 728.1  | 676.5  | 606.8 | 545.4 | 502.2  | 477.0 | 468.7  | 465.9 |
| 37.5° | 682.1  | 664.0  | 613.8  | 549.6 | 493.8 | 456.2  | 433.8 | 428.3  | 425.4 |
| 40°   | 612.4  | 599.8  | 553.8  | 495.2 | 443.5 | 410.1  | 391.9 | 387.8  | 387.8 |
| 42.5° | 549.6  | 535.6  | 495.2  | 442.2 | 396.2 | 362.7  | 350.2 | 345.9  | 347.3 |
| 45°   | 492.4  | 478.4  | 440.8  | 391.9 | 347.3 | 319.4  | 309.7 | 309.7  | 309.7 |
| 47.5° | 439.4  | 426.8  | 391.9  | 341.8 | 305.4 | 283.2  | 273.4 | 273.4  | 274.8 |
| 50°   | 390.6  | 382.2  | 343.2  | 299.9 | 267.8 | 246.9  | 240.0 | 238.6  | 241.3 |
| 52.5° | 344.6  | 334.8  | 299.9  | 260.8 | 230.2 | 213.5  | 206.5 | 205.1  | 206.5 |
| 55°   | 305.4  | 294.3  | 263.7  | 226.0 | 198.1 | 181.3  | 173.0 | 171.6  | 174.3 |
| 57.5° | 267.8  | 259.5  | 227.3  | 193.8 | 167.3 | 150.6  | 143.7 | 140.9  | 142.2 |
| 60°   | 233.0  | 224.6  | 195.3  | 163.2 | 139.5 | 122.7  | 113.0 | 110.2  | 111.6 |
| 62.5° | 200.8  | 193.8  | 166.0  | 135.3 | 111.6 | 96.2   | 86.5  | 79.5   | 82.4  |
| 65°   | 171.6  | 164.6  | 139.5  | 108.9 | 87.9  | 71.1   | 57.2  | 51.6   | 53.0  |
| 67.5° | 146.5  | 138.1  | 114.4  | 86.5  | 65.6  | 47.4   | 32.1  | 29.2   | 29.2  |
| 70°   | 121.4  | 113.0  | 92.1   | 67.0  | 46.0  | 25.1   | 14.0  | 14.0   | 14.0  |
| 72.5° | 97.6   | 90.7   | 71.1   | 50.2  | 29.2  | 11.1   | 5.6   | 5.6    | 5.6   |
| 75°   | 75.4   | 69.7   | 53.0   | 34.9  | 18.1  | 5.6    | 4.1   | 2.8    | 2.8   |
| 77.5° | 55.7   | 50.2   | 37.6   | 23.7  | 11.1  | 2.8    | 2.8   | 2.8    | 2.8   |
| 80°   | 37.6   | 33.5   | 25.1   | 14.0  | 5.6   | 1.4    | 1.4   | 1.4    | 1.4   |
| 82.5° | 22.4   | 19.5   | 14.0   | 7.0   | 2.8   | 1.4    | 1.4   | 1.4    | 1.4   |
| 85°   | 11.1   | 8.4    | 5.6    | 2.8   | 1.4   | 1.4    | 1.4   | 1.4    | 1.4   |
| 87.5° | 2.8    | 1.4    | 1.4    | 1.4   | 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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