

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: P592673

Luminaire Tested: **HCC4S20D010BZ-HM40525850-41WWWB**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P592673  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-18)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/9/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HCC4S20D010BZ-HM40525850-41WWWB  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 5000K CCT  
CYLINDER  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

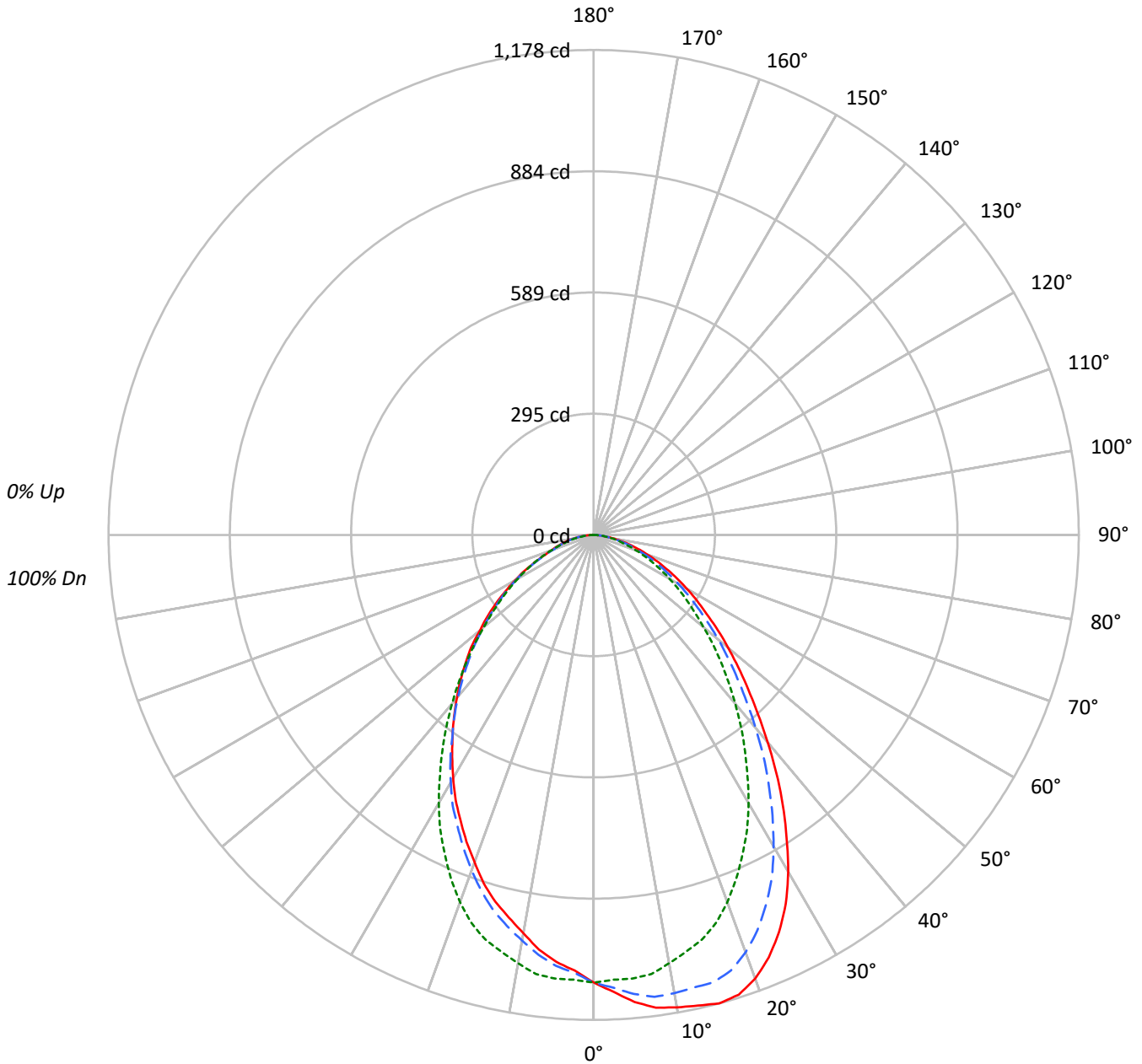
Lumens per Lamp: N/A  
Luminaire Lumens: 2108.2 lumens  
Efficiency: N/A  
Efficacy: 105.4 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 1.07 / 1.15  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 20  
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: 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   | 110 | 106 | 103 | 99  | 108 | 104 | 101 | 98  | 100 | 97  | 95  | 96  | 94  | 92  | 92  | 91  | 89  | 87  |    |    |    |  |  |  |  |   |
| 2   | 102 | 95  | 89  | 84  | 99  | 93  | 87  | 83  | 89  | 85  | 81  | 86  | 82  | 79  | 83  | 80  | 77  | 75  |    |    |    |  |  |  |  |   |
| 3   | 94  | 85  | 77  | 72  | 92  | 83  | 76  | 71  | 80  | 75  | 70  | 78  | 73  | 69  | 75  | 71  | 68  | 66  |    |    |    |  |  |  |  |   |
| 4   | 87  | 76  | 68  | 62  | 85  | 75  | 68  | 62  | 72  | 66  | 61  | 70  | 65  | 60  | 68  | 63  | 60  | 58  |    |    |    |  |  |  |  |   |
| 5   | 81  | 69  | 61  | 55  | 79  | 68  | 60  | 55  | 66  | 59  | 54  | 64  | 58  | 53  | 62  | 57  | 53  | 51  |    |    |    |  |  |  |  |   |
| 6   | 75  | 63  | 55  | 49  | 73  | 62  | 54  | 49  | 60  | 53  | 48  | 59  | 53  | 48  | 57  | 52  | 47  | 46  |    |    |    |  |  |  |  |   |
| 7   | 70  | 58  | 50  | 44  | 68  | 57  | 49  | 44  | 55  | 48  | 43  | 54  | 48  | 43  | 53  | 47  | 43  | 41  |    |    |    |  |  |  |  |   |
| 8   | 65  | 53  | 45  | 40  | 64  | 52  | 45  | 40  | 51  | 44  | 39  | 50  | 44  | 39  | 49  | 43  | 39  | 37  |    |    |    |  |  |  |  |   |
| 9   | 61  | 49  | 41  | 36  | 60  | 48  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 36  | 45  | 40  | 36  | 34  |    |    |    |  |  |  |  |   |
| 10  | 58  | 46  | 38  | 33  | 57  | 45  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 42  | 37  | 33  | 31  |    |    |    |  |  |  |  |   |

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

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 134089 | 134089 | 134089 |
| 5°  | 140990 | 133908 | 128893 |
| 10° | 145939 | 132312 | 123044 |
| 15° | 150414 | 129906 | 117788 |
| 20° | 150570 | 124554 | 111008 |
| 25° | 144916 | 116417 | 104073 |
| 30° | 134565 | 107134 | 97192  |
| 35° | 120627 | 96445  | 89925  |
| 40° | 105820 | 86063  | 83149  |
| 45° | 92504  | 76194  | 76665  |
| 50° | 81688  | 66663  | 69081  |
| 55° | 72019  | 59116  | 62105  |
| 60° | 64362  | 52323  | 54395  |
| 65° | 57000  | 46026  | 46026  |
| 70° | 49804  | 39274  | 39274  |
| 75° | 42605  | 33217  | 37220  |
| 80° | 33740  | 29762  | 33740  |
| 85° | 21795  | 25616  | 31701  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 103.0  | 4.9       |
| 10°-20°   | 290.1  | 13.8      |
| 20°-30°   | 406.4  | 19.3      |
| 30°-40°   | 418.6  | 19.9      |
| 40°-50°   | 356.4  | 16.9      |
| 50°-60°   | 264.1  | 12.5      |
| 60°-70°   | 165.7  | 7.9       |
| 70°-80°   | 82.3   | 3.9       |
| 80°-90°   | 21.6   | 1.0       |
| 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°    | 799.4  | 37.9      |
| 0°-40°    | 1218.0 | 57.8      |
| 0°-60°    | 1838.5 | 87.2      |
| 0°-90°    | 2108.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2108.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90°  | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0°  | 1087 | 1087 | 1087 | 1087 | 1087 |      |
| 5°  | 1139 | 1119 | 1082 | 1051 | 1041 | 109  |
| 15° | 1178 | 1125 | 1017 | 943  | 922  | 331  |
| 25° | 1065 | 991  | 855  | 782  | 765  | 487  |
| 35° | 801  | 741  | 640  | 599  | 597  | 499  |
| 45° | 530  | 494  | 437  | 428  | 440  | 411  |
| 55° | 335  | 308  | 275  | 280  | 289  | 303  |
| 65° | 195  | 176  | 158  | 155  | 158  | 195  |
| 75° | 89   | 80   | 70   | 75   | 78   | 95   |
| 85° | 15   | 15   | 18   | 21   | 22   | 20   |
| 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°    | 1087.1 | 1087.1 | 1087.1 | 1087.1 | 1087.1 | 1087.1 | 1087.1 | 1087.1 | 1087.1 |
| 2.5°  | 1110.9 | 1106.6 | 1101.0 | 1091.3 | 1081.5 | 1073.1 | 1064.8 | 1060.6 | 1059.1 |
| 5°    | 1138.7 | 1130.4 | 1119.2 | 1101.0 | 1081.5 | 1064.8 | 1050.8 | 1043.9 | 1041.0 |
| 7.5°  | 1158.2 | 1149.9 | 1131.7 | 1103.9 | 1075.9 | 1050.8 | 1028.5 | 1018.8 | 1015.9 |
| 10°   | 1165.2 | 1155.5 | 1130.4 | 1092.6 | 1056.4 | 1025.6 | 1000.5 | 988.0  | 982.4  |
| 12.5° | 1170.9 | 1158.2 | 1126.1 | 1081.5 | 1036.9 | 999.2  | 972.7  | 955.9  | 951.8  |
| 15°   | 1177.9 | 1163.9 | 1124.7 | 1070.4 | 1017.3 | 972.7  | 943.4  | 928.0  | 922.4  |
| 17.5° | 1170.9 | 1155.5 | 1109.4 | 1048.0 | 988.0  | 939.2  | 907.0  | 893.2  | 887.5  |
| 20°   | 1147.1 | 1130.4 | 1078.8 | 1013.1 | 948.9  | 898.7  | 866.6  | 852.7  | 845.7  |
| 22.5° | 1110.9 | 1092.6 | 1039.6 | 969.9  | 904.3  | 855.4  | 824.7  | 810.8  | 806.6  |
| 25°   | 1064.8 | 1046.6 | 990.8  | 919.7  | 855.4  | 807.9  | 781.5  | 768.9  | 764.7  |
| 27.5° | 1010.4 | 992.2  | 937.8  | 868.0  | 806.6  | 762.0  | 741.0  | 728.5  | 725.7  |
| 30°   | 944.8  | 926.7  | 873.6  | 809.4  | 752.2  | 710.3  | 693.6  | 683.8  | 682.4  |
| 32.5° | 872.2  | 856.8  | 807.9  | 749.3  | 695.0  | 660.1  | 647.5  | 640.5  | 639.1  |
| 35°   | 801.1  | 784.3  | 741.0  | 688.0  | 640.5  | 609.9  | 598.6  | 597.2  | 597.2  |
| 37.5° | 728.5  | 711.7  | 676.8  | 628.0  | 587.5  | 559.6  | 555.4  | 556.8  | 556.8  |
| 40°   | 657.2  | 642.0  | 611.2  | 570.7  | 534.5  | 513.5  | 512.1  | 514.9  | 516.4  |
| 42.5° | 590.2  | 577.7  | 549.9  | 514.9  | 484.3  | 467.5  | 468.9  | 474.5  | 478.6  |
| 45°   | 530.3  | 519.1  | 494.0  | 463.3  | 436.8  | 424.3  | 428.4  | 435.4  | 439.5  |
| 47.5° | 475.9  | 466.1  | 442.4  | 414.4  | 392.2  | 383.8  | 389.3  | 397.7  | 403.3  |
| 50°   | 425.7  | 417.3  | 394.9  | 365.7  | 347.4  | 341.9  | 348.9  | 357.3  | 360.0  |
| 52.5° | 380.9  | 372.5  | 348.9  | 323.8  | 309.8  | 307.1  | 313.9  | 320.9  | 325.2  |
| 55°   | 334.9  | 327.9  | 308.4  | 286.1  | 274.9  | 273.6  | 280.4  | 286.1  | 288.8  |
| 57.5° | 297.2  | 290.3  | 272.1  | 252.6  | 242.8  | 241.4  | 248.4  | 252.6  | 253.9  |
| 60°   | 260.9  | 253.9  | 237.2  | 219.1  | 212.1  | 212.1  | 216.3  | 219.1  | 220.5  |
| 62.5° | 227.5  | 220.5  | 205.1  | 189.8  | 184.2  | 184.2  | 184.2  | 185.6  | 189.8  |
| 65°   | 195.3  | 189.8  | 175.8  | 161.8  | 157.7  | 154.8  | 154.8  | 154.8  | 157.7  |
| 67.5° | 166.1  | 160.5  | 149.3  | 136.7  | 132.6  | 128.3  | 127.0  | 129.7  | 129.7  |
| 70°   | 138.1  | 134.0  | 122.8  | 113.0  | 108.9  | 104.6  | 103.2  | 108.9  | 108.9  |
| 72.5° | 113.0  | 108.9  | 101.9  | 92.1   | 87.9   | 86.5   | 89.4   | 92.1   | 93.5   |
| 75°   | 89.4   | 85.1   | 79.5   | 74.0   | 69.7   | 71.1   | 75.4   | 76.7   | 78.1   |
| 77.5° | 67.0   | 65.6   | 60.0   | 55.9   | 55.9   | 57.2   | 60.0   | 62.7   | 64.2   |
| 80°   | 47.5   | 46.0   | 43.2   | 40.5   | 41.9   | 44.6   | 46.0   | 48.9   | 47.5   |
| 82.5° | 29.2   | 29.2   | 27.9   | 27.9   | 29.2   | 32.1   | 33.5   | 34.9   | 36.2   |
| 85°   | 15.4   | 15.4   | 15.4   | 16.7   | 18.1   | 19.5   | 20.9   | 22.4   | 22.4   |
| 87.5° | 4.1    | 5.6    | 5.6    | 7.0    | 8.4    | 8.4    | 9.7    | 9.7    | 9.7    |
| 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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