

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: P580092

Luminaire Tested: **HCC4W20D010BZ-HM40525935-41WWWB**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P580092  
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: HCC4W20D010BZ-HM40525935-41WWWB  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
CYLINDER  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

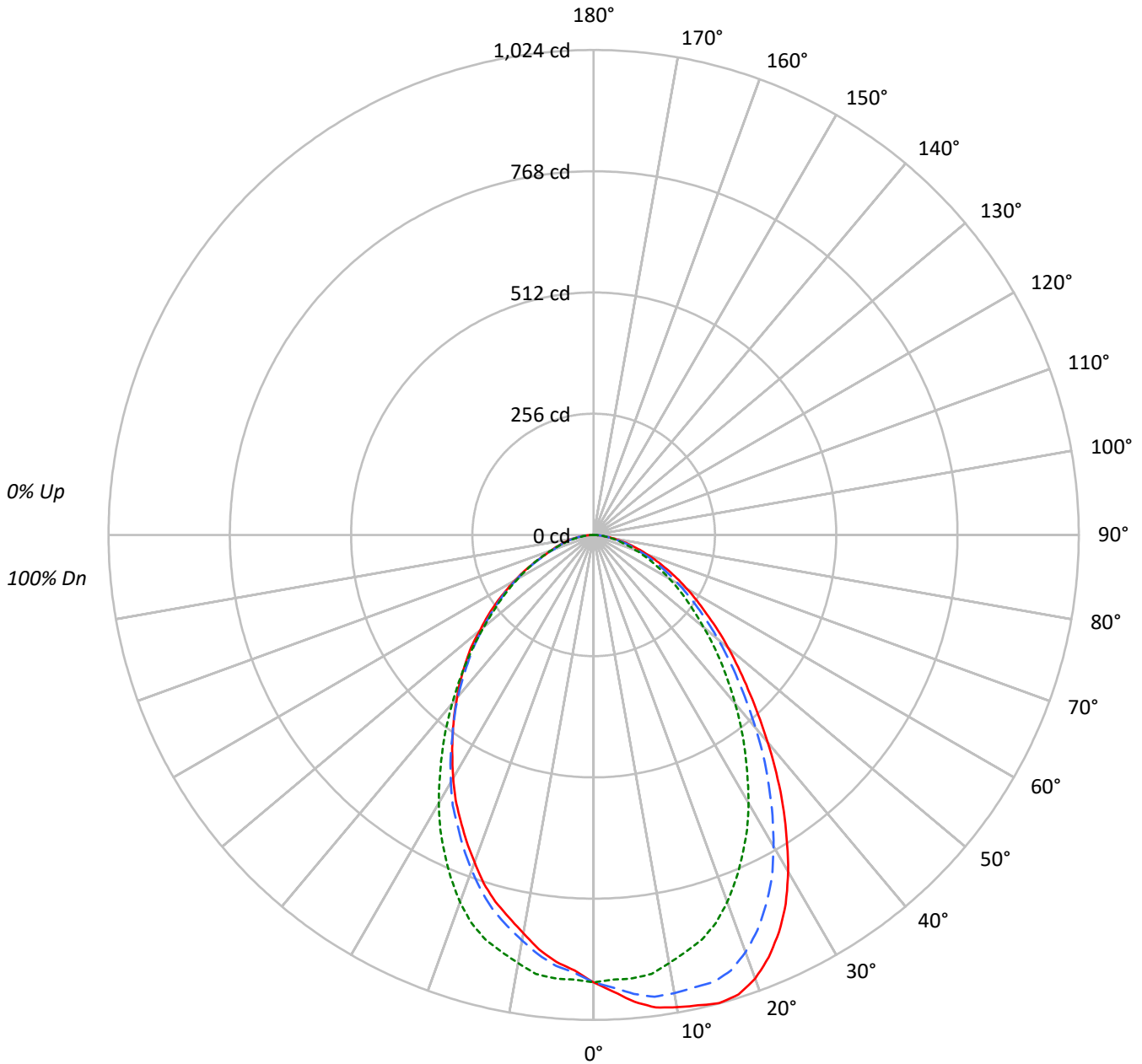
Lumens per Lamp: N/A  
Luminaire Lumens: 1832.2 lumens  
Efficiency: N/A  
Efficacy: 91.6 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 1.07 / 1.15  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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  |     |     |    |    |    |  |  |  |  |   |
| 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  | 45  | 38  | 33  | 57  | 45  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 42  | 37  | 33  | 31  |    |    |    |  |  |  |  |   |

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

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 116537 | 116537 | 116537 |
| 5°  | 122529 | 116388 | 112029 |
| 10° | 126839 | 114991 | 106937 |
| 15° | 130710 | 112897 | 102362 |
| 20° | 130855 | 108252 | 96477  |
| 25° | 125944 | 101188 | 90450  |
| 30° | 116933 | 93105  | 84459  |
| 35° | 104817 | 83811  | 78150  |
| 40° | 91972  | 74792  | 72248  |
| 45° | 80398  | 66234  | 66652  |
| 50° | 70981  | 57951  | 60043  |
| 55° | 62600  | 51375  | 53998  |
| 60° | 55950  | 45465  | 47291  |
| 65° | 49558  | 40014  | 40014  |
| 70° | 43313  | 34116  | 34116  |
| 75° | 37030  | 28928  | 32359  |
| 80° | 29336  | 25856  | 29336  |
| 85° | 18823  | 22219  | 27456  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 89.5   | 4.9       |
| 10°-20°   | 252.1  | 13.8      |
| 20°-30°   | 353.1  | 19.3      |
| 30°-40°   | 363.8  | 19.9      |
| 40°-50°   | 309.8  | 16.9      |
| 50°-60°   | 229.5  | 12.5      |
| 60°-70°   | 144.0  | 7.9       |
| 70°-80°   | 71.6   | 3.9       |
| 80°-90°   | 18.8   | 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°    | 694.7  | 37.9      |
| 0°-40°    | 1058.6 | 57.8      |
| 0°-60°    | 1597.8 | 87.2      |
| 0°-90°    | 1832.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1832.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45° | 90° | 135° | 180° | Flux |
|-----|------|-----|-----|------|------|------|
| 0°  | 945  | 945 | 945 | 945  | 945  |      |
| 5°  | 990  | 973 | 940 | 913  | 905  | 95   |
| 15° | 1024 | 978 | 884 | 820  | 802  | 288  |
| 25° | 925  | 861 | 744 | 679  | 665  | 423  |
| 35° | 696  | 644 | 557 | 520  | 519  | 434  |
| 45° | 461  | 429 | 380 | 372  | 382  | 358  |
| 55° | 291  | 268 | 239 | 244  | 251  | 263  |
| 65° | 170  | 153 | 137 | 135  | 137  | 169  |
| 75° | 78   | 69  | 61  | 66   | 68   | 83   |
| 85° | 13   | 13  | 16  | 18   | 19   | 17   |
| 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°    | 944.8  | 944.8  | 944.8 | 944.8 | 944.8 | 944.8  | 944.8 | 944.8  | 944.8 |
| 2.5°  | 965.4  | 961.8  | 956.9 | 948.5 | 940.0 | 932.6  | 925.4 | 921.7  | 920.5 |
| 5°    | 989.6  | 982.4  | 972.7 | 956.9 | 940.0 | 925.4  | 913.2 | 907.2  | 904.8 |
| 7.5°  | 1006.6 | 999.4  | 983.6 | 959.4 | 935.0 | 913.2  | 893.9 | 885.4  | 883.0 |
| 10°   | 1012.7 | 1004.2 | 982.4 | 949.6 | 918.1 | 891.4  | 869.5 | 858.6  | 853.8 |
| 12.5° | 1017.5 | 1006.6 | 978.7 | 940.0 | 901.1 | 868.4  | 845.3 | 830.8  | 827.1 |
| 15°   | 1023.6 | 1011.4 | 977.5 | 930.2 | 884.1 | 845.3  | 819.9 | 806.5  | 801.6 |
| 17.5° | 1017.5 | 1004.2 | 964.2 | 910.8 | 858.6 | 816.2  | 788.3 | 776.2  | 771.4 |
| 20°   | 996.9  | 982.4  | 937.4 | 880.4 | 824.7 | 781.0  | 753.1 | 741.0  | 735.0 |
| 22.5° | 965.4  | 949.6  | 903.5 | 842.9 | 785.9 | 743.5  | 716.8 | 704.6  | 701.0 |
| 25°   | 925.4  | 909.6  | 861.1 | 799.2 | 743.5 | 702.2  | 679.1 | 668.2  | 664.6 |
| 27.5° | 878.0  | 862.3  | 814.9 | 754.4 | 701.0 | 662.2  | 644.0 | 633.0  | 630.6 |
| 30°   | 821.0  | 805.3  | 759.2 | 703.5 | 653.7 | 617.3  | 602.7 | 594.3  | 593.0 |
| 32.5° | 757.9  | 744.6  | 702.2 | 651.3 | 604.0 | 573.6  | 562.7 | 556.6  | 555.5 |
| 35°   | 696.1  | 681.5  | 644.0 | 597.9 | 556.6 | 530.0  | 520.3 | 519.0  | 519.0 |
| 37.5° | 633.0  | 618.6  | 588.2 | 545.7 | 510.5 | 486.3  | 482.7 | 483.9  | 483.9 |
| 40°   | 571.2  | 557.9  | 531.2 | 496.1 | 464.5 | 446.3  | 445.2 | 447.6  | 448.7 |
| 42.5° | 513.1  | 502.0  | 477.8 | 447.6 | 420.8 | 406.3  | 407.5 | 412.3  | 416.0 |
| 45°   | 460.9  | 451.1  | 429.3 | 402.6 | 379.7 | 368.6  | 372.3 | 378.4  | 382.1 |
| 47.5° | 413.6  | 405.1  | 384.5 | 360.2 | 340.8 | 333.5  | 338.4 | 345.6  | 350.5 |
| 50°   | 369.9  | 362.7  | 343.2 | 317.7 | 302.0 | 297.2  | 303.2 | 310.5  | 312.9 |
| 52.5° | 331.1  | 323.8  | 303.2 | 281.4 | 269.2 | 266.8  | 272.9 | 279.0  | 282.6 |
| 55°   | 291.1  | 285.0  | 268.1 | 248.7 | 238.9 | 237.7  | 243.7 | 248.7  | 251.1 |
| 57.5° | 258.3  | 252.2  | 236.5 | 219.5 | 211.0 | 209.8  | 215.9 | 219.5  | 220.7 |
| 60°   | 226.8  | 220.7  | 206.2 | 190.4 | 184.3 | 184.3  | 188.0 | 190.4  | 191.7 |
| 62.5° | 197.6  | 191.7  | 178.2 | 164.9 | 160.1 | 160.1  | 160.1 | 161.3  | 164.9 |
| 65°   | 169.8  | 164.9  | 152.8 | 140.7 | 137.1 | 134.7  | 134.7 | 134.7  | 137.1 |
| 67.5° | 144.3  | 139.5  | 129.7 | 118.8 | 115.2 | 111.6  | 110.3 | 112.8  | 112.8 |
| 70°   | 120.1  | 116.4  | 106.7 | 98.2  | 94.6  | 91.0   | 89.7  | 94.6   | 94.6  |
| 72.5° | 98.2   | 94.6   | 88.5  | 80.1  | 76.4  | 75.2   | 77.7  | 80.1   | 81.2  |
| 75°   | 77.7   | 74.0   | 69.2  | 64.2  | 60.7  | 61.8   | 65.5  | 66.8   | 67.9  |
| 77.5° | 58.3   | 57.0   | 52.2  | 48.5  | 48.5  | 49.8   | 52.2  | 54.6   | 55.7  |
| 80°   | 41.3   | 40.0   | 37.6  | 35.2  | 36.4  | 38.8   | 40.0  | 42.4   | 41.3  |
| 82.5° | 25.5   | 25.5   | 24.2  | 24.2  | 25.5  | 27.9   | 29.1  | 30.3   | 31.5  |
| 85°   | 13.3   | 13.3   | 13.3  | 14.6  | 15.7  | 17.0   | 18.2  | 19.4   | 19.4  |
| 87.5° | 3.7    | 4.8    | 4.8   | 6.1   | 7.2   | 7.2    | 8.5   | 8.5    | 8.5   |
| 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



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

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