

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: P580107

Luminaire Tested: **HC420D010-HM40525940-41RWWH**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P580107  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-15)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/9/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC420D010-HM40525940-41RWWH  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1927.5 lumens  
Efficiency: N/A  
Efficacy: 96.4 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 1.08 / 1.16  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

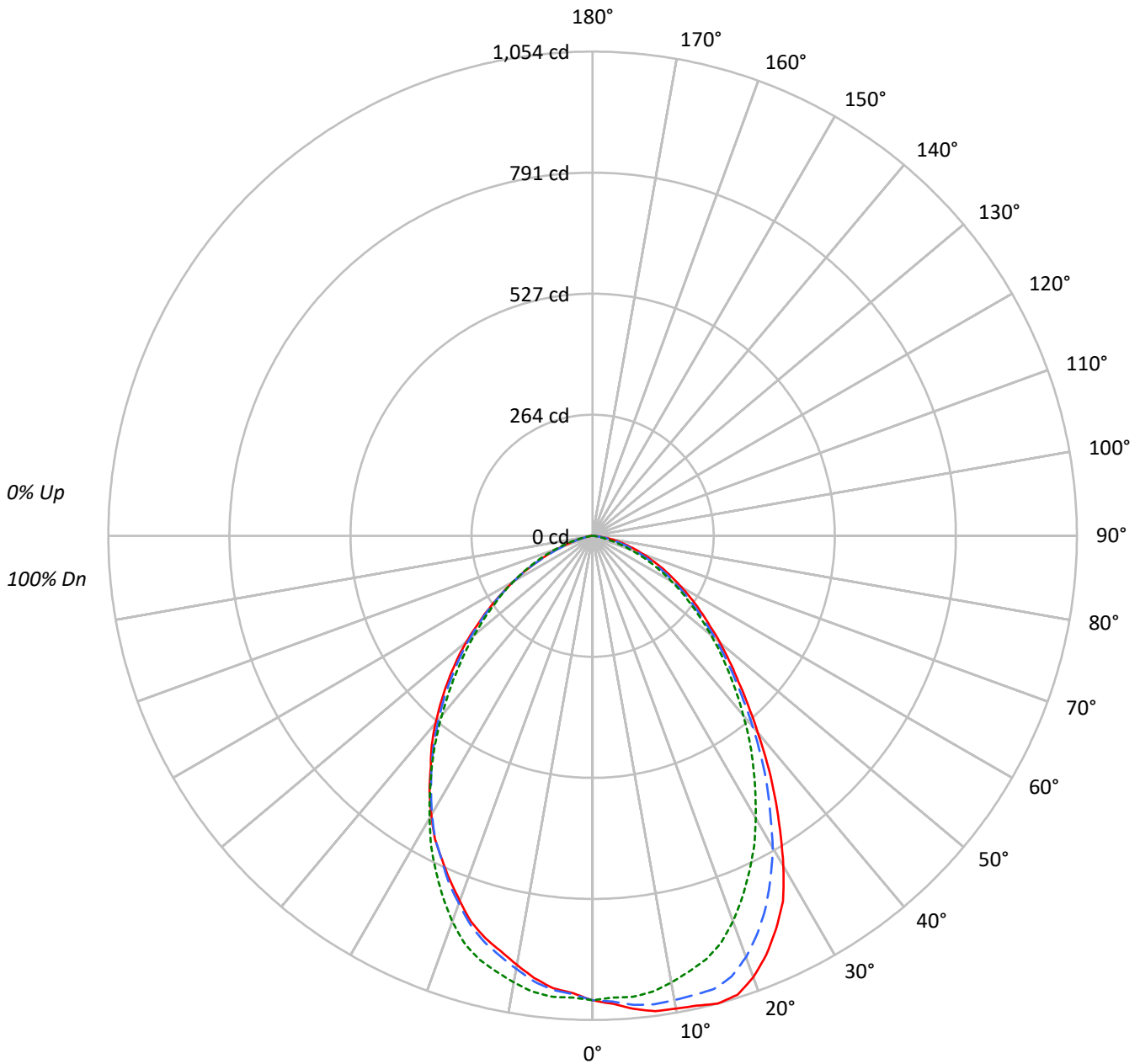
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF  | 20  |     |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     | 20 |    |   |  |  |  |  |  |  | 20 |  |  |  |  |  |  |  |  |   |
| 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   | 111 | 107 | 104 | 100 | 108 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 93  | 92  | 90  | 88  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 103 | 96  | 90  | 85  | 100 | 94  | 89  | 84  | 90  | 86  | 82  | 87  | 84  | 80  | 84  | 81  | 79  | 77  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 95  | 86  | 79  | 73  | 92  | 84  | 78  | 73  | 81  | 76  | 71  | 79  | 74  | 70  | 76  | 72  | 69  | 67  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 88  | 77  | 70  | 64  | 86  | 76  | 69  | 63  | 74  | 67  | 62  | 71  | 66  | 62  | 69  | 65  | 61  | 59  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 81  | 70  | 62  | 56  | 79  | 69  | 61  | 56  | 67  | 60  | 55  | 65  | 59  | 55  | 63  | 58  | 54  | 52  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 76  | 64  | 56  | 50  | 74  | 63  | 55  | 50  | 61  | 54  | 49  | 60  | 54  | 49  | 58  | 53  | 49  | 47  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 71  | 58  | 51  | 45  | 69  | 58  | 50  | 45  | 56  | 49  | 45  | 55  | 49  | 44  | 54  | 48  | 44  | 42  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 66  | 54  | 46  | 41  | 65  | 53  | 46  | 41  | 52  | 45  | 40  | 51  | 45  | 40  | 50  | 44  | 40  | 38  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 62  | 50  | 42  | 37  | 61  | 49  | 42  | 37  | 48  | 41  | 37  | 47  | 41  | 37  | 46  | 41  | 37  | 35  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 58  | 46  | 39  | 34  | 57  | 46  | 39  | 34  | 45  | 38  | 34  | 44  | 38  | 34  | 43  | 38  | 34  | 32  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 124727 | 124727 | 124727 |
| 5°  | 128002 | 124733 | 122405 |
| 10° | 130897 | 123658 | 118798 |
| 15° | 134592 | 121899 | 115655 |
| 20° | 134228 | 117243 | 110982 |
| 25° | 128571 | 109762 | 105652 |
| 30° | 118257 | 101095 | 100012 |
| 35° | 104049 | 91747  | 92485  |
| 40° | 90008  | 82118  | 85564  |
| 45° | 78235  | 72967  | 77345  |
| 50° | 69426  | 64360  | 68697  |
| 55° | 61589  | 56450  | 58901  |
| 60° | 54839  | 48944  | 48944  |
| 65° | 48770  | 40715  | 38117  |
| 70° | 42159  | 30835  | 27192  |
| 75° | 35314  | 20350  | 16775  |
| 80° | 26779  | 9802   | 8950   |
| 85° | 14294  | 3538   | 3538   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 95.8   | 5.0       |
| 10°-20°   | 271.5  | 14.1      |
| 20°-30°   | 382.9  | 19.9      |
| 30°-40°   | 395.5  | 20.5      |
| 40°-50°   | 335.3  | 17.4      |
| 50°-60°   | 244.0  | 12.7      |
| 60°-70°   | 142.5  | 7.4       |
| 70°-80°   | 53.0   | 2.7       |
| 80°-90°   | 7.0    | 0.4       |
| 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°    | 750.2  | 38.9      |
| 0°-40°    | 1145.7 | 59.4      |
| 0°-60°    | 1725.0 | 89.5      |
| 0°-90°    | 1927.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1927.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90°  | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0°  | 1011 | 1011 | 1011 | 1011 | 1011 |      |
| 5°  | 1034 | 1025 | 1007 | 992  | 989  | 99   |
| 15° | 1054 | 1021 | 955  | 914  | 906  | 296  |
| 25° | 945  | 892  | 806  | 778  | 776  | 432  |
| 35° | 691  | 661  | 609  | 610  | 614  | 432  |
| 45° | 448  | 436  | 418  | 433  | 443  | 349  |
| 55° | 286  | 273  | 262  | 271  | 274  | 258  |
| 65° | 167  | 153  | 140  | 131  | 131  | 166  |
| 75° | 74   | 62   | 43   | 34   | 35   | 80   |
| 85° | 10   | 6    | 2    | 2    | 2    | 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°    | 1011.2 | 1011.2 | 1011.2 | 1011.2 | 1011.2 | 1011.2 | 1011.2 | 1011.2 | 1011.2 |
| 2.5°  | 1020.0 | 1017.5 | 1015.0 | 1011.2 | 1006.1 | 1002.5 | 998.7  | 996.2  | 996.2  |
| 5°    | 1033.8 | 1030.1 | 1025.1 | 1016.2 | 1007.4 | 1000.0 | 992.4  | 988.6  | 988.6  |
| 7.5°  | 1043.9 | 1038.8 | 1028.9 | 1016.2 | 1001.2 | 989.9  | 978.6  | 973.6  | 971.1  |
| 10°   | 1045.1 | 1040.1 | 1026.3 | 1007.4 | 987.3  | 969.8  | 957.2  | 949.7  | 948.5  |
| 12.5° | 1047.7 | 1041.4 | 1023.8 | 997.4  | 971.1  | 949.7  | 935.8  | 928.3  | 925.9  |
| 15°   | 1054.0 | 1045.1 | 1021.3 | 987.3  | 954.6  | 929.5  | 914.5  | 908.2  | 905.7  |
| 17.5° | 1047.7 | 1035.1 | 1006.1 | 966.0  | 929.5  | 901.9  | 886.9  | 880.6  | 880.6  |
| 20°   | 1022.6 | 1009.9 | 976.1  | 932.1  | 893.2  | 866.8  | 851.6  | 848.0  | 845.5  |
| 22.5° | 987.3  | 973.6  | 937.1  | 890.6  | 851.6  | 827.8  | 817.8  | 812.8  | 811.5  |
| 25°   | 944.7  | 930.8  | 891.9  | 844.2  | 806.5  | 786.4  | 777.6  | 777.6  | 776.3  |
| 27.5° | 897.0  | 879.3  | 839.1  | 797.6  | 761.3  | 746.1  | 742.5  | 742.5  | 743.7  |
| 30°   | 830.3  | 817.8  | 783.9  | 743.7  | 709.8  | 699.7  | 699.7  | 702.2  | 702.2  |
| 32.5° | 758.7  | 749.9  | 719.7  | 684.6  | 658.3  | 652.0  | 654.5  | 659.5  | 660.8  |
| 35°   | 691.0  | 680.9  | 660.8  | 629.4  | 609.3  | 606.8  | 610.5  | 614.2  | 614.2  |
| 37.5° | 624.3  | 614.2  | 600.5  | 575.3  | 560.3  | 561.5  | 566.5  | 571.6  | 575.3  |
| 40°   | 559.0  | 551.5  | 541.4  | 521.3  | 510.0  | 515.0  | 521.3  | 526.4  | 531.4  |
| 42.5° | 501.2  | 493.7  | 486.1  | 471.1  | 463.5  | 469.8  | 477.4  | 482.4  | 487.4  |
| 45°   | 448.5  | 443.4  | 435.9  | 423.4  | 418.3  | 424.6  | 433.3  | 438.4  | 443.4  |
| 47.5° | 403.3  | 400.8  | 390.7  | 379.3  | 376.9  | 383.1  | 390.7  | 397.0  | 400.8  |
| 50°   | 361.8  | 358.0  | 349.3  | 337.9  | 335.4  | 345.5  | 350.5  | 354.2  | 358.0  |
| 52.5° | 321.6  | 317.8  | 307.7  | 297.8  | 297.8  | 305.2  | 309.0  | 310.3  | 314.0  |
| 55°   | 286.4  | 282.6  | 272.6  | 265.1  | 262.5  | 268.9  | 271.4  | 271.4  | 273.9  |
| 57.5° | 253.7  | 249.9  | 240.0  | 231.1  | 229.9  | 233.6  | 233.6  | 233.6  | 234.9  |
| 60°   | 222.3  | 218.6  | 208.5  | 201.0  | 198.4  | 199.7  | 198.4  | 197.2  | 198.4  |
| 62.5° | 193.5  | 189.7  | 179.6  | 170.8  | 168.4  | 168.4  | 164.6  | 163.3  | 164.6  |
| 65°   | 167.1  | 160.8  | 153.2  | 144.4  | 139.5  | 135.7  | 130.6  | 130.6  | 130.6  |
| 67.5° | 140.7  | 135.7  | 126.9  | 118.0  | 111.8  | 105.5  | 98.0   | 100.5  | 101.7  |
| 70°   | 116.9  | 113.1  | 103.0  | 94.2   | 85.5   | 77.9   | 71.6   | 74.1   | 75.4   |
| 72.5° | 95.4   | 90.5   | 81.7   | 71.6   | 64.1   | 54.0   | 50.2   | 52.8   | 52.8   |
| 75°   | 74.1   | 69.0   | 61.6   | 51.5   | 42.7   | 34.0   | 34.0   | 35.2   | 35.2   |
| 77.5° | 55.3   | 50.2   | 42.7   | 34.0   | 26.4   | 20.1   | 21.3   | 21.3   | 21.3   |
| 80°   | 37.7   | 34.0   | 27.6   | 20.1   | 13.8   | 11.4   | 11.4   | 11.4   | 12.6   |
| 82.5° | 21.3   | 18.8   | 15.0   | 10.1   | 6.3    | 6.3    | 6.3    | 6.3    | 6.3    |
| 85°   | 10.1   | 7.6    | 6.3    | 3.8    | 2.5    | 2.5    | 2.5    | 2.5    | 2.5    |
| 87.5° | 1.3    | 1.3    | 1.3    | 1.3    | 1.3    | 1.3    | 1.3    | 1.3    | 1.3    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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







(END OF REPORT)