

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: P579826

Luminaire Tested: **HC410D010-HM40525940-41WWW**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P579826  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-16)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/9/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC410D010-HM40525940-41WWW  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1031.4 lumens  
Efficiency: N/A  
Efficacy: 104.2 lumens/watt  
Spacing Criteria (0/90/45): 1.06 / 1.03 / 1.1  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

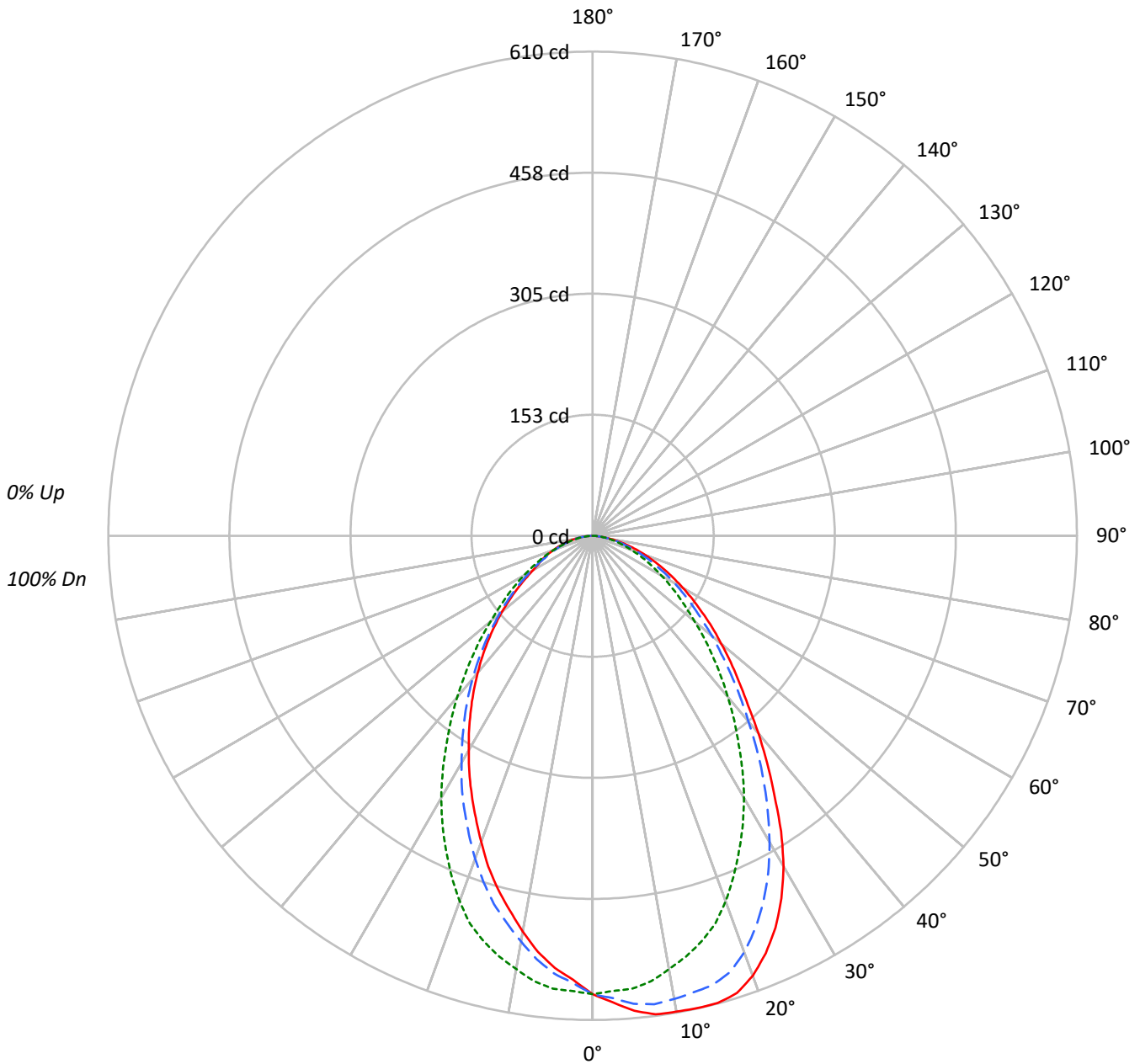
Input Watts (W): 9.9  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 |    |    |    | 100 |  |  |  |   |
| 1   | 111 | 106 | 103 | 100 | 108 | 104 | 101 | 98  | 100 | 97  | 95  | 96  | 94  | 92  | 93  | 91  | 89  | 87  |    |    |    | 87  |  |  |  |   |
| 2   | 102 | 95  | 89  | 84  | 100 | 93  | 88  | 83  | 90  | 85  | 81  | 87  | 83  | 80  | 84  | 81  | 78  | 76  |    |    |    | 76  |  |  |  |   |
| 3   | 94  | 85  | 78  | 72  | 92  | 84  | 77  | 72  | 81  | 75  | 71  | 78  | 73  | 69  | 76  | 72  | 68  | 66  |    |    |    | 66  |  |  |  |   |
| 4   | 87  | 77  | 69  | 63  | 85  | 76  | 68  | 63  | 73  | 67  | 62  | 71  | 66  | 61  | 69  | 64  | 60  | 58  |    |    |    | 58  |  |  |  |   |
| 5   | 81  | 70  | 62  | 56  | 79  | 69  | 61  | 56  | 67  | 60  | 55  | 65  | 59  | 54  | 63  | 58  | 54  | 52  |    |    |    | 52  |  |  |  |   |
| 6   | 76  | 64  | 56  | 50  | 74  | 63  | 55  | 50  | 61  | 54  | 49  | 59  | 53  | 49  | 58  | 53  | 48  | 47  |    |    |    | 47  |  |  |  |   |
| 7   | 71  | 58  | 50  | 45  | 69  | 58  | 50  | 45  | 56  | 49  | 44  | 55  | 49  | 44  | 53  | 48  | 44  | 42  |    |    |    | 42  |  |  |  |   |
| 8   | 66  | 54  | 46  | 41  | 65  | 53  | 46  | 41  | 52  | 45  | 40  | 51  | 45  | 40  | 50  | 44  | 40  | 38  |    |    |    | 38  |  |  |  |   |
| 9   | 62  | 50  | 42  | 37  | 61  | 49  | 42  | 37  | 48  | 42  | 37  | 47  | 41  | 37  | 46  | 41  | 37  | 35  |    |    |    | 35  |  |  |  |   |
| 10  | 59  | 46  | 39  | 34  | 57  | 46  | 39  | 34  | 45  | 38  | 34  | 44  | 38  | 34  | 43  | 38  | 34  | 32  |    |    |    | 32  |  |  |  |   |

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

|     | 0°    | 90°   | 180°  |
|-----|-------|-------|-------|
| 0°  | 71232 | 71232 | 71232 |
| 5°  | 74364 | 70922 | 67653 |
| 10° | 76251 | 69438 | 63401 |
| 15° | 77831 | 67590 | 58830 |
| 20° | 77418 | 64305 | 53870 |
| 25° | 74173 | 59461 | 49022 |
| 30° | 68508 | 54293 | 44423 |
| 35° | 60065 | 48290 | 40219 |
| 40° | 52298 | 42669 | 36213 |
| 45° | 45511 | 37225 | 32358 |
| 50° | 40547 | 32084 | 28573 |
| 55° | 36235 | 28193 | 24687 |
| 60° | 32341 | 24644 | 21289 |
| 65° | 28777 | 21627 | 20226 |
| 70° | 25245 | 18645 | 18861 |
| 75° | 21350 | 15870 | 17442 |
| 80° | 16408 | 13496 | 15911 |
| 85° | 9624  | 10614 | 13586 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 54.1   | 5.2       |
| 10°-20°   | 149.3  | 14.5      |
| 20°-30°   | 204.0  | 19.8      |
| 30°-40°   | 204.9  | 19.9      |
| 40°-50°   | 169.5  | 16.4      |
| 50°-60°   | 122.8  | 11.9      |
| 60°-70°   | 77.8   | 7.5       |
| 70°-80°   | 39.3   | 3.8       |
| 80°-90°   | 9.6    | 0.9       |
| 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°    | 407.5  | 39.5      |
| 0°-40°    | 612.4  | 59.4      |
| 0°-60°    | 904.7  | 87.7      |
| 0°-90°    | 1031.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1031.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0°  | 578 | 578 | 578 | 578  | 578  |      |
| 5°  | 601 | 592 | 573 | 554  | 546  | 58   |
| 15° | 610 | 586 | 529 | 480  | 461  | 171  |
| 25° | 545 | 509 | 437 | 382  | 360  | 249  |
| 35° | 399 | 375 | 321 | 281  | 267  | 250  |
| 45° | 261 | 246 | 213 | 192  | 186  | 203  |
| 55° | 168 | 154 | 131 | 120  | 115  | 152  |
| 65° | 99  | 88  | 74  | 67   | 69   | 98   |
| 75° | 45  | 39  | 33  | 35   | 37   | 48   |
| 85° | 7   | 7   | 8   | 9    | 10   | 9    |
| 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°    | 577.5 | 577.5 | 577.5 | 577.5 | 577.5 | 577.5  | 577.5 | 577.5  | 577.5 |
| 2.5°  | 588.5 | 586.4 | 583.0 | 578.9 | 574.1 | 568.8  | 564.0 | 561.3  | 559.9 |
| 5°    | 600.6 | 597.9 | 591.9 | 583.0 | 572.8 | 562.6  | 553.8 | 548.4  | 546.4 |
| 7.5°  | 608.1 | 604.1 | 595.2 | 581.6 | 566.0 | 551.0  | 538.2 | 530.6  | 528.6 |
| 10°   | 608.8 | 604.1 | 592.6 | 574.1 | 554.4 | 534.7  | 519.2 | 508.2  | 506.2 |
| 12.5° | 609.5 | 603.4 | 589.1 | 567.4 | 542.9 | 518.5  | 499.5 | 486.5  | 483.1 |
| 15°   | 609.5 | 603.4 | 585.7 | 559.9 | 529.3 | 501.5  | 480.3 | 465.4  | 460.7 |
| 17.5° | 604.1 | 597.2 | 576.2 | 546.4 | 513.0 | 481.7  | 457.2 | 441.7  | 436.9 |
| 20°   | 589.8 | 582.3 | 558.5 | 525.9 | 489.9 | 457.2  | 432.8 | 416.5  | 410.4 |
| 22.5° | 569.5 | 560.6 | 535.4 | 500.2 | 464.1 | 430.8  | 407.1 | 390.0  | 384.6 |
| 25°   | 545.0 | 536.1 | 508.9 | 474.3 | 436.9 | 405.7  | 381.9 | 366.2  | 360.2 |
| 27.5° | 515.1 | 505.5 | 479.0 | 444.4 | 409.7 | 378.5  | 356.8 | 342.4  | 336.4 |
| 30°   | 481.0 | 470.9 | 445.8 | 412.4 | 381.2 | 351.3  | 330.2 | 318.6  | 311.9 |
| 32.5° | 441.7 | 432.8 | 410.4 | 380.5 | 351.3 | 322.7  | 305.1 | 294.9  | 289.5 |
| 35°   | 398.9 | 394.1 | 375.1 | 349.3 | 320.7 | 296.9  | 281.3 | 271.8  | 267.1 |
| 37.5° | 360.9 | 356.1 | 339.7 | 318.0 | 292.8 | 271.1  | 258.2 | 250.0  | 245.9 |
| 40°   | 324.8 | 320.7 | 305.1 | 286.8 | 265.0 | 245.9  | 235.1 | 229.0  | 224.9 |
| 42.5° | 289.5 | 287.5 | 274.5 | 257.5 | 238.5 | 222.1  | 213.4 | 208.6  | 205.2 |
| 45°   | 260.9 | 258.2 | 245.9 | 229.6 | 213.4 | 199.7  | 192.3 | 188.9  | 185.5 |
| 47.5° | 235.8 | 232.4 | 219.5 | 205.2 | 190.3 | 178.0  | 171.3 | 167.9  | 166.5 |
| 50°   | 211.3 | 207.9 | 196.4 | 182.1 | 167.2 | 158.3  | 152.8 | 149.5  | 148.9 |
| 52.5° | 189.6 | 186.2 | 173.3 | 159.7 | 148.2 | 140.7  | 135.9 | 132.5  | 131.1 |
| 55°   | 168.5 | 164.4 | 153.5 | 140.7 | 131.1 | 124.4  | 119.6 | 116.2  | 114.8 |
| 57.5° | 149.5 | 145.4 | 135.9 | 123.7 | 114.8 | 108.7  | 104.7 | 101.3  | 99.9  |
| 60°   | 131.1 | 127.8 | 118.9 | 107.3 | 99.9  | 94.5   | 90.4  | 87.6   | 86.3  |
| 62.5° | 114.1 | 111.4 | 102.6 | 92.4  | 86.3  | 81.6   | 78.2  | 75.4   | 76.8  |
| 65°   | 98.6  | 95.8  | 87.6  | 78.9  | 74.1  | 69.3   | 66.6  | 66.6   | 69.3  |
| 67.5° | 83.5  | 80.9  | 74.1  | 66.6  | 62.5  | 59.1   | 57.1  | 59.1   | 61.1  |
| 70°   | 70.0  | 67.3  | 61.1  | 55.1  | 51.7  | 48.9   | 48.9  | 51.0   | 52.3  |
| 72.5° | 57.1  | 54.4  | 49.6  | 44.8  | 42.1  | 40.1   | 42.1  | 43.5   | 44.8  |
| 75°   | 44.8  | 42.8  | 38.7  | 35.3  | 33.3  | 32.7   | 34.7  | 36.0   | 36.6  |
| 77.5° | 33.3  | 32.0  | 29.2  | 26.5  | 25.1  | 25.8   | 27.9  | 28.6   | 29.2  |
| 80°   | 23.1  | 22.4  | 20.4  | 19.0  | 19.0  | 19.7   | 21.1  | 21.7   | 22.4  |
| 82.5° | 14.2  | 14.2  | 12.9  | 12.2  | 12.9  | 14.2   | 14.9  | 15.6   | 15.6  |
| 85°   | 6.8   | 7.5   | 6.8   | 6.8   | 7.5   | 8.9    | 8.9   | 9.6    | 9.6   |
| 87.5° | 2.0   | 2.0   | 2.7   | 2.7   | 3.4   | 3.4    | 3.4   | 3.4    | 4.1   |
| 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)