

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: P592615

Luminaire Tested: **HC410D010-HM40525950-41RWWC**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P592615  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-14)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/9/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC410D010-HM40525950-41RWWC  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, SPECULAR TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

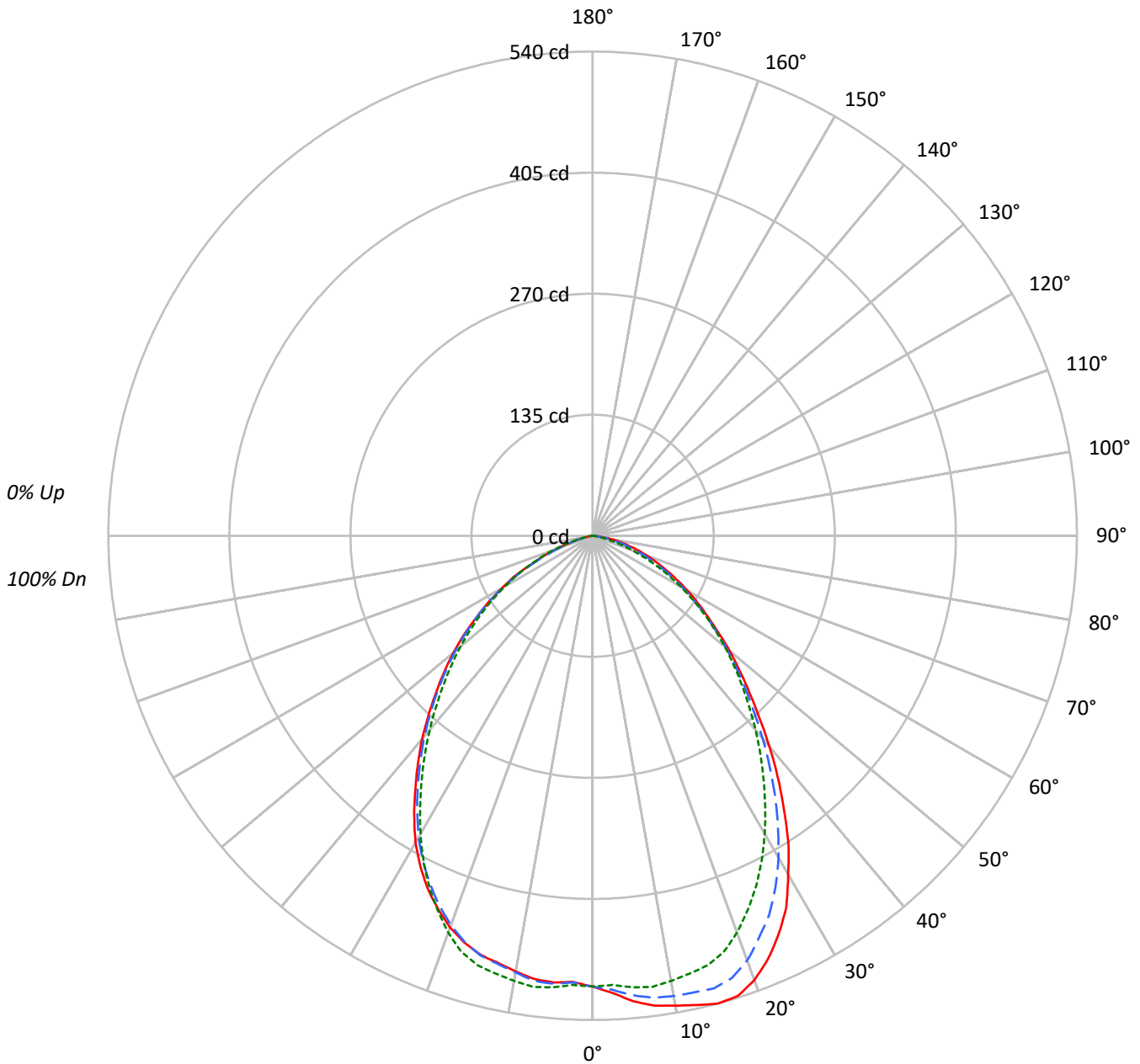
Lumens per Lamp: N/A  
Luminaire Lumens: 1047.7 lumens  
Efficiency: N/A  
Efficacy: 105.8 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.15 / 1.21  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 9.9  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage 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 | 107 | 103 | 100 | 108 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 93  | 92  | 90  | 88  |    |    |    | 88  |  |  |  |   |
| 2   | 102 | 95  | 90  | 85  | 100 | 94  | 88  | 84  | 90  | 86  | 82  | 87  | 83  | 80  | 84  | 81  | 78  | 76  |    |    |    | 76  |  |  |  |   |
| 3   | 95  | 85  | 78  | 73  | 92  | 84  | 77  | 72  | 81  | 75  | 71  | 78  | 74  | 70  | 76  | 72  | 69  | 67  |    |    |    | 67  |  |  |  |   |
| 4   | 87  | 77  | 69  | 63  | 85  | 76  | 68  | 63  | 73  | 67  | 62  | 71  | 66  | 61  | 69  | 64  | 60  | 58  |    |    |    | 58  |  |  |  |   |
| 5   | 81  | 70  | 61  | 56  | 79  | 68  | 61  | 55  | 66  | 60  | 55  | 65  | 59  | 54  | 63  | 58  | 54  | 52  |    |    |    | 52  |  |  |  |   |
| 6   | 75  | 63  | 55  | 49  | 74  | 62  | 55  | 49  | 61  | 54  | 49  | 59  | 53  | 48  | 58  | 52  | 48  | 46  |    |    |    | 46  |  |  |  |   |
| 7   | 70  | 58  | 50  | 44  | 69  | 57  | 49  | 44  | 56  | 49  | 44  | 54  | 48  | 44  | 53  | 47  | 43  | 41  |    |    |    | 41  |  |  |  |   |
| 8   | 66  | 53  | 45  | 40  | 64  | 53  | 45  | 40  | 51  | 44  | 40  | 50  | 44  | 39  | 49  | 43  | 39  | 37  |    |    |    | 37  |  |  |  |   |
| 9   | 62  | 49  | 42  | 36  | 60  | 49  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 36  | 45  | 40  | 36  | 34  |    |    |    | 34  |  |  |  |   |
| 10  | 58  | 46  | 38  | 33  | 57  | 45  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 42  | 37  | 33  | 31  |    |    |    | 31  |  |  |  |   |

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

|     | 0°    | 90°   | 180°  |
|-----|-------|-------|-------|
| 0°  | 62018 | 62018 | 62018 |
| 5°  | 64521 | 62589 | 61908 |
| 10° | 66632 | 63138 | 61785 |
| 15° | 68969 | 63325 | 61780 |
| 20° | 69201 | 61798 | 61010 |
| 25° | 66769 | 58712 | 59175 |
| 30° | 62127 | 54664 | 56230 |
| 35° | 55970 | 50037 | 51874 |
| 40° | 49351 | 45519 | 47580 |
| 45° | 43138 | 41010 | 43016 |
| 50° | 38186 | 36901 | 38858 |
| 55° | 33590 | 32580 | 33891 |
| 60° | 30022 | 27827 | 28666 |
| 65° | 26384 | 22619 | 22211 |
| 70° | 23009 | 16661 | 15183 |
| 75° | 19110 | 10056 | 8102  |
| 80° | 14491 | 3907  | 2415  |
| 85° | 6793  | 991   | 991   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 48.5   | 4.6       |
| 10°-20°   | 141.5  | 13.5      |
| 20°-30°   | 205.0  | 19.6      |
| 30°-40°   | 216.2  | 20.6      |
| 40°-50°   | 187.1  | 17.9      |
| 50°-60°   | 138.6  | 13.2      |
| 60°-70°   | 79.9   | 7.6       |
| 70°-80°   | 27.9   | 2.7       |
| 80°-90°   | 2.9    | 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°    | 395.0  | 37.7      |
| 0°-40°    | 611.2  | 58.3      |
| 0°-60°    | 937.0  | 89.4      |
| 0°-90°    | 1047.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1047.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0°  | 503 | 503 | 503 | 503  | 503  |      |
| 5°  | 521 | 514 | 506 | 501  | 500  | 50   |
| 15° | 540 | 522 | 496 | 484  | 484  | 152  |
| 25° | 491 | 466 | 431 | 429  | 435  | 225  |
| 35° | 372 | 355 | 332 | 340  | 344  | 232  |
| 45° | 247 | 241 | 235 | 244  | 247  | 192  |
| 55° | 156 | 153 | 152 | 157  | 158  | 141  |
| 65° | 90  | 85  | 78  | 73   | 76   | 90   |
| 75° | 40  | 34  | 21  | 17   | 17   | 43   |
| 85° | 5   | 3   | 1   | 1    | 1    | 7    |
| 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°    | 502.8 | 502.8 | 502.8 | 502.8 | 502.8 | 502.8  | 502.8 | 502.8  | 502.8 |
| 2.5°  | 510.3 | 508.9 | 506.9 | 504.1 | 501.4 | 499.4  | 498.7 | 498.0  | 498.0 |
| 5°    | 521.1 | 518.4 | 514.4 | 508.9 | 505.5 | 503.5  | 501.4 | 500.0  | 500.0 |
| 7.5°  | 528.6 | 525.9 | 519.7 | 512.3 | 507.5 | 503.5  | 500.7 | 498.7  | 498.7 |
| 10°   | 532.0 | 528.6 | 521.1 | 511.6 | 504.1 | 498.7  | 494.6 | 493.3  | 493.3 |
| 12.5° | 536.1 | 532.0 | 521.8 | 509.6 | 500.0 | 493.3  | 489.2 | 487.9  | 487.9 |
| 15°   | 540.1 | 535.4 | 522.5 | 508.2 | 495.9 | 487.9  | 484.4 | 483.8  | 483.8 |
| 17.5° | 538.2 | 532.0 | 517.0 | 500.0 | 486.5 | 478.3  | 474.9 | 474.9  | 475.6 |
| 20°   | 527.2 | 521.1 | 504.1 | 485.1 | 470.8 | 464.8  | 462.0 | 463.4  | 464.8 |
| 22.5° | 511.0 | 503.5 | 485.1 | 466.8 | 451.8 | 446.4  | 446.4 | 448.4  | 450.4 |
| 25°   | 490.6 | 483.8 | 466.1 | 445.8 | 431.4 | 427.3  | 428.7 | 432.1  | 434.8 |
| 27.5° | 467.5 | 460.0 | 441.7 | 422.7 | 408.3 | 406.3  | 409.7 | 414.5  | 415.8 |
| 30°   | 436.2 | 430.1 | 414.5 | 396.1 | 383.8 | 383.2  | 387.9 | 391.4  | 394.8 |
| 32.5° | 406.3 | 399.6 | 384.5 | 366.9 | 358.0 | 358.7  | 364.2 | 368.3  | 370.3 |
| 35°   | 371.7 | 365.5 | 354.7 | 340.4 | 332.3 | 333.5  | 339.7 | 343.8  | 344.5 |
| 37.5° | 339.0 | 334.9 | 324.1 | 313.2 | 307.1 | 309.8  | 315.2 | 320.0  | 320.0 |
| 40°   | 306.5 | 303.0 | 294.9 | 286.1 | 282.7 | 286.1  | 291.4 | 295.5  | 295.5 |
| 42.5° | 275.2 | 273.1 | 266.3 | 260.3 | 258.2 | 263.0  | 267.7 | 271.1  | 270.4 |
| 45°   | 247.3 | 245.2 | 240.6 | 235.8 | 235.1 | 239.9  | 243.9 | 245.9  | 246.6 |
| 47.5° | 222.1 | 220.8 | 216.8 | 213.4 | 213.4 | 218.0  | 221.5 | 223.5  | 224.2 |
| 50°   | 199.0 | 197.7 | 194.4 | 191.6 | 192.3 | 197.0  | 199.7 | 201.8  | 202.5 |
| 52.5° | 175.9 | 175.3 | 172.5 | 169.2 | 171.3 | 174.6  | 178.0 | 179.3  | 180.0 |
| 55°   | 156.2 | 156.2 | 152.8 | 150.1 | 151.5 | 154.9  | 156.9 | 157.6  | 157.6 |
| 57.5° | 138.6 | 137.9 | 133.8 | 131.1 | 131.8 | 135.2  | 136.6 | 137.2  | 137.2 |
| 60°   | 121.7 | 121.0 | 116.9 | 112.8 | 112.8 | 114.8  | 115.5 | 116.2  | 116.2 |
| 62.5° | 105.3 | 104.6 | 99.9  | 96.5  | 95.1  | 94.5   | 94.5  | 95.8   | 98.6  |
| 65°   | 90.4  | 89.7  | 84.9  | 79.5  | 77.5  | 75.4   | 73.4  | 74.8   | 76.1  |
| 67.5° | 76.8  | 75.4  | 70.7  | 65.9  | 61.1  | 57.7   | 54.4  | 56.4   | 59.1  |
| 70°   | 63.8  | 62.5  | 57.1  | 51.7  | 46.2  | 40.7   | 38.0  | 40.7   | 42.1  |
| 72.5° | 51.7  | 50.3  | 44.8  | 39.4  | 32.7  | 27.2   | 26.5  | 27.2   | 27.9  |
| 75°   | 40.1  | 39.4  | 34.0  | 27.9  | 21.1  | 17.0   | 17.0  | 17.0   | 17.0  |
| 77.5° | 29.9  | 28.6  | 23.1  | 17.6  | 12.2  | 9.6    | 8.9   | 8.9    | 8.9   |
| 80°   | 20.4  | 19.0  | 14.2  | 10.2  | 5.5   | 4.1    | 4.1   | 3.4    | 3.4   |
| 82.5° | 11.5  | 10.9  | 7.5   | 4.1   | 2.0   | 1.4    | 1.4   | 1.4    | 1.4   |
| 85°   | 4.8   | 4.1   | 2.7   | 1.4   | 0.7   | 0.7    | 0.7   | 0.7    | 0.7   |
| 87.5° | 0.7   | 0.7   | 0.7   | 0.0   | 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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— 0°-180°    - - 45°-225°    - - - - 90°-270°







(END OF REPORT)